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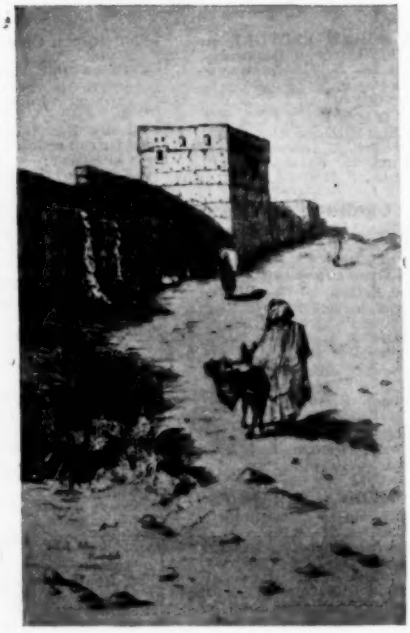

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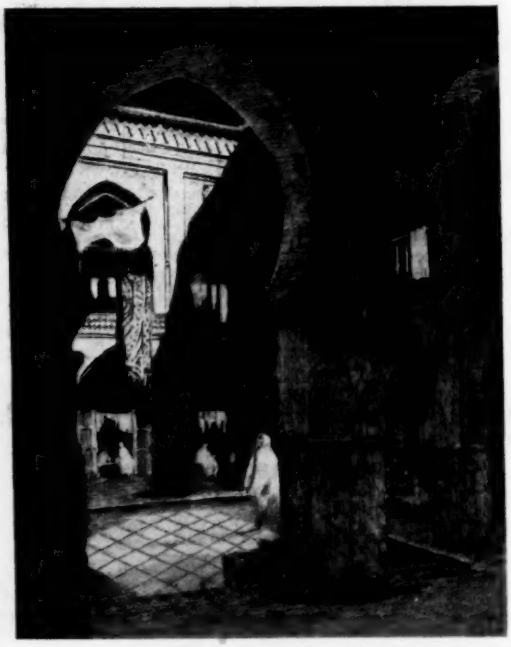

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Bradshaw Lecture

ON THE

THEORY OF DIAGNOSIS.

Delivered before the Royal College of Physicians of London on Nov. 4th, 1926,

BY F. G. CROOKSHANK, M.D., F.R.C.P. LOND.,

PHYSICIAN TO THE PRINCE OF WALES'S GENERAL HOSPITAL AND TO THE FRENCH HOSPITAL AND DISPENSARY; CONSULTING PHYSICIAN, NEW END HOSPITAL, LONDON.

Verumtamen praesentium cognitium proprie nomine *diagnosin*, hoc est dignotium, appellare consuevimus.
—*Galen* (18–2–24).

PART I.

MR. PRESIDENT, FELLOWS OF THE COLLEGE, LADIES AND GENTLEMEN,—My first duty is to acknowledge the responsibility, cast upon me by your late President, of commemorating the professional and domestic virtues of him whose sorrowful relict became, in 1880, our eponymous benefactrix. This responsibility is, however, not unmixed with gratification, for I succeed, *sed longo intervallo*, one whose memory should still be green within these walls—Dr. Vivian Poore who, in 1881, gave here the first Bradshaw lecture.

Amongst the Fellows of this College there have been not few more learned in the history of our art and of our science; there have been others more nicely versed in the subtleties of some narrow specialism; and there have been many who have commanded greater recognition. But they have not been many who have better earned the right to be called *Physician;* one whose practice is broadly based upon an intimate acquaintance with Nature, the kind parent of all things. His humanity, his wit, and his sagacity, were gifts not often possessed in such measure by those who obtain greater immediate reward but perhaps exert less lasting influence. I am grateful for the opportunity of saying how much I owe to him.

MEDICINE AND SCIENCE.

By the terms of the Bradshaw Trust, the subject of this lecture must be connected with medicine or surgery; and I have chosen for my theme the Theory of Diagnosis, believing that none other can be more proper either to medicine or to that part thereof we call surgery. Indeed, to diagnosis even therapeusis must yield pride of place, for, in the quaint words of Hart, written in 1625, ancient physicians "did . . . divide Physicke principally into two parts, to wit, that which we commonly call Therapeuticke . . . and that part which we call Diagnosticke, whose most common scope is to discerne the whole and sound from the like and the sick and infirme from the whole, being unlike the one to the other. And this part of Physicke doth farre excell the other, to wit, the Therapeuticke, the which without the Diagnosticke is of small use and profit."

Formerly, the greatest masters of scientific method—as Harvey himself—were accustomed to interpret their observations in the light of those fundamental principles that make up the very matrix in which all true sciences are formed. But the separation between philosophy and natural science that marked the close of last century became so wide that, although reaction has set in, and many are now eager to discuss the general validity of scientific conclusions, medical men are still prone to assert that medicine as a science stands, and must ever stand, upon a so-called solid base of observed fact and planned experiment, in complete dissociation from all mental discipline as such. It is in sympathy with this attitude towards inquiry into the mental processes by which we obtain our "facts" that all trace of metaphysics, logic, and philosophy has disappeared from medical education since, in becoming more medical, it became less educative. Profoundly dissatisfied, Dr. Mercier wrote, ten years ago, that, while the fundamental concepts in every calling are the most difficult to define, and the definition of them is not arrived at until late in the history of that calling, nevertheless in every calling a time must at length arrive when such definition is needed, and that such a time is now arrived in the history of medicine. Now medicine, so far as itself a science, is (as Hobson says natural science is in its every stage and its every department) a conceptual scheme and not a perceptual intuition. The need for clear definition of the integral concepts of medicine is, therefore, at least as imperative as is the practice of that indirect or analogical form of observation by experiment, which to so many seems to afford a more solid "basis of fact" than does direct observation at the bedside or in the field.

It is necessary to insist upon the conceptual aspect of medicine as a science, for—again to quote Hobson—in modern times until recently most men of science have been dominated by the philosophical theory of knowledge—essentially unnecessary to scientific method—known as physical realism. The influence of this theory is never more prejudicial than when unconsciously sustained by those who loudly proclaim the freedom of medicine from philosophical thrall!

No further excuse seems needed for an attempt to say what we have in mind when we speak about "this so noble a part of Physicke" and to give an account of its theory—that is to say, to explain it, by appeal to first principles in terms that are independent of medical doctrine. But if success is to be obtained—and by success I mean not finality but the clarification of thought—we must give ear to Galen and "come to agreement quickly about Words, getting soon to the Things themselves, and spending on these only our time and trouble, for most of those who call themselves educated do otherwise, and so do never perfect their Art." (7–43, 44.)

Important though it be to distinguish between words and things, it is no less so to distinguish between the words by which we tell our thoughts about things: these thoughts, and the things that are thought about. This triple distinction between what I have called names, notions, and happenings—or, as Messrs. Ogden and Richards say, perhaps with greater propriety, words, thoughts, and things—should be maintained during every discussion. We should, therefore, think separately of *diagnosis*, the name, or verbal symbol: of the notions for which this symbol has stood, and the explanations thereof; and of the processes concerning which these notions and explanations have been entertained. In so doing we follow the injunction of William of Occam, the greatest of English philosophers, and choose always the *suppositio* beneath the word; whether the word be employed physically, or *materialiter*, *pro voce;* conceptually, or *simpliciter*, *pro intentionae animae;* representatively, or *personaliter*, *pro re*. This is what Ogden and Richards intend when they speak of the word or symbol, standing for a mental *reference*, which itself represents the *referents* we observe or think about.

DIAGNOSIS: THE NAME.

The Greek word *diagnosis*, with its congeners, is infrequent in the Hippocratic Collection, though less so than may be thought, since some translators have avoided the use of exact equivalents, apparently because the full Greek meaning is not always conveyed by them. Recourse has been had to periphrasis; and the suggestion that the modern English usage of the word is not that of the Greek has been avoided. Without doubt Dr. Withington—to whom I am more than indebted—is right when he says that, in the Greek, the connotation of the particle *dia-* in *diagnosis* is at least as intensive as discriminative; his view is supported by the fact that though no formal definition of the word appears in Hippocrates, Galen, in whose writings it is exceedingly common, does define it (in the "Commentary upon the Prognostics of Hippocrates") as the clear cognition, or *gnosis*, of things present (18–2–24). So, too, when he declares that it took him long to make the fundamental *diagnosis* of the pulse—that the artery not merely rises and falls, but expands (8–771). Later writers seem to have used the word mainly in copying from

Galen and, although *dignoscere* is in Virgil, it is said not to occur in Salernitan translations or in mediæval writings generally. I have not seen it in any Latin work earlier than the last part of the sixteenth century, when its revival was probably due to renewed acquaintance with the Greek of Galen. (Withington.)

Diagnosticke we have seen as an English substantive in 1625 (Hart), but *diagnosis* does not occur till 1681, when Pordage, in the glossary to his translation of Willis, defines it as *dilucidation*, or *knowledge*. Later, the word does not appear to have been greatly used for nearly a hundred years, and then somewhat differently. In 1731 de Sauvages had attempted to classify diseases as if they were indeed objects or groups of objects in nature: in Sydenham's words, "to be reduc'd to certain and determinate kinds, with the same exactness as we see it done by botanic writers in their treatises of plants," and possessing "certain distinguishing signs which Nature has particularly affixed to every species." Faber has shown how Linne, fired with enthusiasm, applied to diseases his own aphorism, *Species tot sunt diversae quot diversae formae ab initio sunt creatae*, and caused a "Genera Morborum" to be compiled for the use of his own pupils. The fashion spread, and in 1771 a new era in modern medicine commenced when Hélian published his "Dictionnaire du Diagnostic, ou l'art de connaître les maladies et de les distinguer exactement les unes des autres."

Now whatever we may hold a *species* or *genus* to be, no disease is a discrete object of perceptual experience in the way that a single plant is, and, while much may be said on grounds of convenience for classifying the various kinds of illness we recognise, the implication that *diseases* are species of classifiable entities and that the art of diagnosis only came into existence after their recognition as such, is a consequence of our failure to follow Harvey's example and to inquire, with Aristotle, whence and how knowledge reaches us. Moreover, we cannot accept the identification of a process with one of its own modalities as a definition of that process. Now although Cullen in 1772 introduced into Scotland a systematic nosology based upon symptom-complexes, and Price in 1791 published in London a "Treatise on the Diagnosis and Prognosis of Disease," or, as Forbes gives it, *Diseases*, English physicians, on the whole, long regarded diagnosis as a process applicable to persons rather than to diseases, and displayed little enthusiasm for the botanical classifications of de Sauvages and his followers and the specifist doctrines of the later French Organicists headed by Bretonneau and Laënnec. Nevertheless, in Forbes's translation of the latter's famous "Traité" (1834) we find such a phrase as "the diagnosis . . . . of pneumonia," and the advantages of classifying clinical phenomena and creating diseases by the correlation of sign-groups with post-mortem patterns, in the style of Laënnec, became so appreciated that for many years to interpret in terms of specific diseases was almost the only duty of the diagnostician. Thus, in 1882, the New Sydenham Society's "Lexicon" laid it down that diagnosis is the distinguishing of things, the noting of symptoms, whereby a disease or plant *or other object* may be known for what (it) is and not another. The following year Hecht, in the "Dictionnaire Encyclopédique des Sciences Médicales," defined diagnosis as "cette partie de la pathologie qui a pour objet la distinction des maladies entre elles," a definition persisting so lately as 1904 in Dunglison's "Dictionary of Medical Science," which states diagnosis to be that part of medicine whose object is the recognition or determination of the nature of diseases and the knowledge of the pathognomonic signs of each. By the "New English Dictionary" diagnosis, in the medical sense, is said to be the determination of the nature of a diseased condition, or the identification of a disease by careful investigation of its symptoms and history, together with the opinion, formally stated, resulting from such investigation. The same dictionary gives the general, or biological meaning as "distinctive characterisation in precise terms." That it is characterisation that is of the essence rather than characterisation in terms of any particular convention is implied by Dr. Christian when, in the "Oxford Medicine," he writes that diagnosis depends upon a proper evaluation of signs and symptoms recorded by all available means and interpreted with the critical judgment of a large common sense.

Thus do we return to Galen's definition of diagnosis as the clear cognition of things present, and to the right to employ, without doctrinal or conventional prejudice, this word which, first used by the Father of Medicine, has been absent from literature during long periods of time, and to-day is more than ever conspicuous in our verbal equipment.

DIAGNOSIS: THE EXPLANATIONS.

It is disappointing to the student of medicine to find during the last 150 years—a period coterminous with what Singer calls the Reign of Law—so easy an acceptance of linguistic subterfuges which, however convenient when teaching students, are yet responsible for much confusion in the minds of students grown to be teachers.

In former days the physician brought to medicine a mind trained in the theory of knowledge: like Galen and Locke, he made contributions thereto. Diagnosis was then the application to the field of medicine of a method of thought already learned. So, when in the sixteenth century such physicians as Fernel discussed the first principles of all science in their Institutes of Medicine, the theory of diagnosis flowed naturally therefrom and called for no separate discussion.

In the nineteenth century the case was altered. Together with a distrust of logic and philosophy, and a strange belief that science alone gave a sure foothold, there grew up a desire to contain medicine within a cincture, and to-day many a student obtains no better idea of diagnosis than that it is what we do when we encounter a disease: and of a disease, than that it is the sort of thing we diagnose when we encounter it.

Of course, so long as Sydenham's pleasant fancy was accepted as a premise—and it was believed that there are in Nature objective and real, even if immaterial, entities called diseases, denoted by fixed characters and, *ex hypothesi*, the proper subject of diagnostic studies—for so long was it impossible to define diagnosis otherwise than as the art of distinguishing between them. This premise is even yet not decisively repudiated, but, unfortunately, when the nosological systems still perpetuated in our "Official Nomenclature of Diseases" first became rife, those who, like Jeremy Bentham then combated the errors of physical or scholastic realism, had not sufficient technical interest to develop the application of their arguments to medicine, whilst Marshall Hall, in his book "On Diagnosis" (1817) merely said that the diagnosis of *diseases* constitutes the foundation of the practice of medicine, and such medical logicians as Lanza (1826) cared more to undertake medical research, as they called it, by ratiocination than to discuss so humdrum a process as diagnosis appeared to be.

Even Oesterlen, of Heidelberg, whose "Medical Logic," translated by Whitley in 1865, ably exposes the vice of treating names of diseases as if representing existent objects, finding diagnosis fallen amongst thieves, passed by upon the other side and spent energy in a laboured attempt to torture medicine into compliance with the Procrustean demands of Mill's Science of Inductive Logic, or Inductive Philosophy, as it was called. Perhaps in medicine we still tend to use the word *induction* emotively rather than intelligently, and without any clear logical connotation!

At any rate, Barclay, who, in his "Medical Errors" (1864), spoke of the "positive induction that forms one of the elements of the deductive argument by which we arrive at the true diagnosis of disease," tried hard, in his "Manual of Diagnosis" (1857–70), to analyse diagnosis in terms of the prevailing logic, and suggested that the best method of teaching it

was to lay down rules whereby the student might distinguish the diseases described to him in the schools. He never questioned the adequacy of the heroic attempt to resume or group all clinical phenomena in terms of diseases only, or the permanent validity of the nosological distinctions in vogue at the time of the Great Exhibition. Still less did he appreciate the exercise of the diagnostic art by the greatest physicians of all time long before the promulgation of these distinctions, and we receive, in some sort, the impression of an excellent photographer of the period who, writing about Art, ignores the efforts of Phidias and Leonardo in their regrettable lack of acquaintance with the technique of the carte-de-visite and the dry plate.

The truth is that Barclay, whose text-book long remained deservedly popular, had no inkling of the scholastic doctrine of *ficta*, revived in these latter days to teach us that the primary concepts of the physical sciences are subjective interpretations, justified by their convenience and the measure of common assent that they may obtain, but not as perceptions of reality. And so, again girdling medicine with her own zone, he explained diagnosis as the application to any particular case of the lessons taught by semiology and nosology; much as we might define literature as the application to a particular theme of the lessons taught us by caligraphy, dactylography, stenography, and typography!

The professed logicians were not more happy than the logical doctors in their dealings with this subject. Bain (1870), like others, ignored routine diagnosis and, whilst condemning realism in the scholastics, showed himself, like many philosophers, a realist in medicine, giving rules for the naming of diseases which (he said) are generally localised in separate organs or tissues. To Jevons (1877) diagnosis was the operation of discovering to which class of a system a certain case or specimen belongs, an operation performed by the serial rejection of the infinite classes with which the case does not agree. We still do nominal honour to this scholastic operation implying the reality of classes, when we speak of diagnosis by exclusion; but Jevons did not care to examine what generally happens. He set out what people would have to do in order that logicians might say they were behaving in the way they ought to do. And he ended by believing that they did so.

For many years after Jevons the question was not reopened. But, since the South African War, many books have been written professedly devoted to diagnosis as the most important part of medicine. These books give excellent schemes for the physical examination of the patient, whilst strangely ignoring, almost completely, the psychical. The materials are arranged semiologically or topographically rather than nosographically, and all allusion to therapeutics is foregone. But they agree with text-books of medicine generally in avoiding all discussion of first principles, and, so far as possible, any attempt to define disease or diseases, and any hint that the nosological convention represents only one method of diagnosis. Such attempts as are made to define diagnosis are usually either descriptive or involve an obvious *circulus in definiendo*. Thus, one author tells us that diagnosis is prerequisite to accurate prognosis and effective treatment, so that the true end and aim must be the earliest possible recognition of any disease (1922); a second, that diagnosis is the method of distinguishing from one another diseases that have symptoms more or less alike (1925); a third, that a correct and integral diagnosis is the *sine qua non* of rational therapeutics and one that conforms to reality, as shown by the evolution of the malady, the success of the treatment, and the findings at the necropsy!

However, three determined efforts have been lately made to grapple with the subject, and all hail from North America. Dr. Stanley Ryerson gives a clear method of case-taking, but attempts once more to explain diagnosis in terms of inductive logic. Yet, since Mill himself defined induction as the process by which what is true at certain times or of certain individuals, is inferred to be true in like circumstances at all times or of a whole class, it is difficult to see how diagnosis can be said to be an induction or an inference from known particulars to an unknown general. There is a better logical case for speaking of diagnosis as *deductive* for frequently, though quite wrongly, some diagnosticians persist in inference from an assumed general to a present particular! Dr. Llewellys Barker, in the "Oxford Medicine," says rightly that in bygone days there was, as now, recognition by only a few that groupings of signs of illness are conceptual and to be changed when the purpose changes. But we feel the ghostly presence of the Victorian realists and logicians as we turn Dr. Barker's many informative pages and trace the steps we are told we take, or ought to take, when we tread the path of diagnosis.

We learn to distinguish the philosophy, the science, and the art of diagnosis, and are told that, in the application of the science to the art, there being recognition of a problem to be solved and a feeling of diagnostic difficulty, data are accumulated, the anamnesis is recorded, and the *status praesens* investigated, while the catamnesis and epicrisis are duly noted so that, data being summarised and arranged, diagnostic suggestions are considered and, hypothesis not being undervalued, fundamental relations are thought of and elaboration by reasoning, submitted to testing, is guided towards the end. But what is this end—the final cause, in Aristotelian phrase—of diagnosis? It would almost seem, from what Dr. Barker tells us, that diagnosis is the function we discharge when, a diagnostic difficulty being felt, we decide between diagnostic suggestions in order that we arrive at diagnostic conclusions—a solution reminiscent of Raymond Lully when he said that the digestion is the form by virtue of which the digestive digests the digestible!

Dr. Warren T. Vaughan very nearly hits the mark when, in a modest essay that avoids all sophistication, he compares the act of diagnosis to a detective enterprise. For the detective, employing no formal logic or scheme, reasons as does every man in every hour of his life; making use of his acquired knowledge and experience, he interprets what he observes by means of his commonsense. But this is what Dr. Christian says the diagnostician does. In other words, and if we may talk of faculties, the detective and the physician alike exercise what Sturt calls some common constructive or reconstructive faculty and do *not* adopt any of the rationalised methods that logicians and novelists say they do.

In Rignano's language play is given to two fundamental activities—the one intellectual, the other affective. Images of the past are evoked by the present, and the mind seeks the satisfaction that is attained when a judgment that well serves our purpose is achieved. More simply still, diagnosis is just the first stage of the physician's work, the process of forming and expressing those judgments concerning the present state of the sick that guide us in our office of healing; and it consists in observation of the sick, interpretation of what is observed, and symbolisation of the interpretations accomplished.

DIAGNOSIS: THE PROCESS.

Thus considered, diagnosis ceases to be an esoteric process for finding out "what is really the matter." We do not confuse it with any particular diagnostic convention, or assume that they who do not diagnose as we do do not diagnose. We appreciate that it is not governed by strict rules or comparable to the identification of a postage stamp by reference to a collector's catalogue. Finally, we proceed to investigate diagnosis by the methods of psychology, recognising that, like logic, it is a matter for psychologists rather than for the logicians who have so dismally failed us at their own business. This being so, we come to regard diagnosis as a kind of reflex process which, regarded subjectively, resolves into three members, whereof one is perceptive or observational, another associational or interpretative, and the third efferent or symbolising. Thus every response to injury becomes at once a reflex and a diagnosis;

and the reparative process, once regarded as something put forward by a *vis medicatrix Naturae*, is better understood as the effective symbolisation by the organism of the cognisance that it takes of the lesion. The salamander who, its tail being removed, sets about and grows a new one, and the cat, who, feeling ill, seeks and finds the grass that cures, both make diagnoses that may be instinctive but are perfectly adequate to the occasion! The surgeon may reply that one salamander cannot grow a new tail for another, and the salamander may retort that the surgeon cannot grow a new leg even for himself! Still, both salamander and surgeon, like all living creatures, exercise diagnosis in their own measure and according to their own opportunities!

Moreover, Signorina Locatelli has lately shown that the reparative powers possessed by newts are exerted through the nervous system in such fashion that we have to reckon with not only a generalised tendency to repair, possessed by every tissue and by every cell—whereof (as Prof. Leathes has recently said) the persistence is by definition required for the very maintenance of living existence—but a specialised regional reflex system which, for some creatures, assures the reproduction even of a limb. May we not inquire, then, if some healers, even though "unqualified," do not possess some instinctive diagnostic and healing faculty that finds expression practically rather than verbally, but *for others*; a faculty analogous to the instinctive mathematical gifts of the strange calculating boys? At any rate, the observable diagnostic series seems to extend, with gradual transition, from the so-called instinctive and selfish processes of the lower animals to the highly rationalised, and, of course, altruistic judgment-formations of the medico-legal expert, so that the only convenient criterion, restraining the word diagnosis to forms of human endeavour, is that of verbal expression or symbolisation. We are, then, burdened with the task of distinguishing between rational and irrational or—what is not the same thing—orthodox and unorthodox symbolisations.

However, recognition of this evolutionary aspect of diagnosis—stressed by Martinet when he said that "les degrés divers actuellement réalisés par la science diagnostique reproduisent les étapes mêmes de l'évolution diagnostique au cours des âges"—carries with it an obligation to undertake comparative studies that has been insisted upon by Masson-Oursel, though it was Rivers who first pointed out that some primitives practise an art of medicine more rational than ours, in that their modes of diagnosis flow more directly from their ideas concerning disease.

It is, at first, shocking to be told that diagnosis may be at least as rational and as practical when stated in terms of demons as in terms of diseases, yet a dose of castor oil is indifferently efficacious whether a demon or a disease be held responsible for the symptoms, while there is a closer affinity than may be thought between those who believe in specific demons and those who talk about the specific clinical entities that "attack the human race." It is certainly remarkable that, at the stage of human progress when, as Bordeu said, a natural medicine is practised that is comparable to natural religion, there should be clearly marked two diagnostic trends that are traceable throughout the whole history of medicine and that persist to-day amongst us.

Rivers found, diffused throughout America, Indonesia and Papuo-Melanesia, the notion that disease is an abstraction or loss of the soul, or vital principle, or a part thereof; in India and in Africa the belief that disease is due to a something added—a spirit or a demon. Clearly we have here a hint, and more, of the secular controversy between those who find in disease an impairment or failure of functional activity or adaptation—the Vitalists, who regard disease as an accident or *aliquid entis*—and the Organicists, who explain all disease worth their attention in terms of physical attack on organs, and consider each described disease to be an entity, or *ens*. This controversy is indicative of a dichotomy that has ever vexed medicine since first practised (as we say, rationally) some 2400 years ago—a dichotomy that has sometimes seemed best indicated in terms of practice, sometimes in those of doctrine, and again in those of philosophy.

Sometimes, perhaps, the difference has been obscured by the apparent inconsistencies of the greatest physicians who, like Galen and Sydenham, have seen something of the truth in each side, have attempted to reconcile the contending opposites, and have been claimed by each party in turn. But always the difference has been one that is best *stated* as a difference in *method* of diagnosis—that is, in observation, interpretation, and symbolisation—and is best *comprehended* as dependent upon fundamental psychological divergences.

These divergences are of more than medical interest, for in some sort they affect all mankind. They are allied to those which separate the romantics and classics of literature, and, perhaps, also Ostwald's romantics and classics of science, as well as the introverts and extraverts of Jung; they are, perhaps, those which Coleridge had in mind when he said all men are either Aristotelians or Platonists, and which architects divine between the Gothic designers who build from within outwards and the classics who plan from without inwards. That such divergences should obtain in medicine is only to say that physicians are as other men; but that laymen are likewise divided in respect of diagnostic outlook was well shown, a few years ago, during the course of public discussion concerning the alleged diagnostic inefficiency of doctors!

Mr. G. B. Shaw then declared that diagnosis is not the mere affixing of a nominal label, but the finding out all there is the matter with a patient and why; the editor of the *Westminster Gazette* pleaded eagerly for the establishment of a diagnostic caste, whereof the duty should be to affix the proper label and pass the patient on to him who should treat the disease nominated. Herein Mr. Shaw ranged himself definitely with the Vitalists—best represented for us by the tradition of Cos: his colleague as definitely set himself amongst the Organicists of Cnidus—the spiritual home of all who manifest exact nosological proclivities and diagnose diseases rather than patients.

The elderly practitioner who, remote from libraries and from laboratories but near to Nature, is hesitant when asked for verbal diagnosis in terms of recent convention, yet clear in action, is in like fashion opposed to his more formal colleague who, diligently making a diagnosis in strict accordance with differential tables and tests, searches his text-books in confusion for the treatment appropriate to the disease he suspects. Wherein lies the fundamental difference between these two diagnostic attitudes?

All men, when about to interpret what is presented in consciousness, proceed in one of two ways. Some interpret the present by reference to images of past experience stored simply as memories, or as composites of like memories. Others compare present perceptions with mental constructs, made up of memories of like past experiences, but *colligated* (in Whewell's phrase) by something predicated, abstracted, or imagined which, linking them together, converts mere aggregates or composites into organised units that we call ideals, general terms, or universals—just as a colligating staff transforms a thousand men into a battalion. Herein is the difference between the two types of diagnostician—a difference that carries with it many correlations but corresponds closely to what Mr. Trotter has lately recognised as that between the direct or concrete, and the indirect or abstract methods of thought.

The simple composites of *natural* diagnosticians—for whom the definition of diagnosis as clear cognition will suffice—are the *syndromes* of the post-Hippocratic empirics; as Hart said, nothing else but the collection of certain *accidents* and *circumstances* of disease. The mental constructs of *conventional* diagnosticians—for whom diagnosis must establish correspondence between the illness of each patient and some rationalised type—are, as a rule, diseases, but may be demons.

(The bibliography to Part I. will be given with Part II. in the next issue of THE LANCET.)

Thomas Vicary Lecture

ON THE

SIGNIFICANCE OF ANATOMY.

Delivered at the Royal College of Surgeons of England on Nov. 4th, 1926,

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IT may seem strange that in this Museum where the Hunterian Collection is housed I should discuss such a subject as the significance of anatomy, the scientific and practical value of which as the essential foundation of surgery John Hunter surely established once and for all. But no one who is familiar with the attitude towards morphology which is widespread at the present time can doubt that there is need for an appreciation of the part the study of anatomy has played in the history not only of biology and medicine but also of civilisation as a whole, and the even greater services it still remains for the morphologist to achieve.

At the present time it is not only the physiologists and clinicians who question the value of morphology, but some anatomists also and even more biologists bow the knee to the strange fashion of depreciation. In some famous medical schools it is considered almost an offence on the part of an anatomist or biologist to devote himself to the essential business of his subject, and work at real anatomy. The interest and importance of experimental embryology and the fascination of this method of interrogating the processes of Nature are unquestionable. But even the fullest recognition of the value of such work and of the brilliance of its pioneers does not lend any sort of justification for the strange assumption that anatomists who devote their attention to other no less important parts of their subject are wasting their time to obsolete diversions.

The true history of this phase has been so correctly diagnosed by Prof. H. S. Jennings, of the Johns Hopkins University, that I make no apology for quoting him. Referring in *Science* (July 30th, 1926, p. 98) to anatomy as the "physics of organism," he said:—

> "It requires separate consideration, both because of its extreme importance for zoological experiment; and because it was minimised, nay, despised and rejected of the physiological impulse in zoology. This is the rôle of physical arrangements of material in organisms; gross physical arrangements as well as minuter ones; what is variously called organisation or structure. Structure had become the object of one of those epidemic phobias that beset scientific men as they do other men. In the days before experimentation, zoologists had given a romantic and mystical turn to the phenomena of structure in organisms; they built upon it a great edifice which was called morphology. They discovered in organic structure plans, styles comparable to the diverse styles of architecture; to Gothic, Romanesque, Classical, and the rest. But the physiologists said: This may be pretty, but is it Science? It is not. Out with it. We shall have nothing to do with morphology; it is fantastical. And throwing away the baby with the bath water, they largely rejected also the rôle of structural arrangements, even in experimentation. This it was that led to most of the adventures or misadventures of the sort I have recounted, in the progress of experimental zoology. It is important that this phobia should no longer dominate our work. Consider for a few moments the rôle of arrangements or organisation in experimental work, and the consequences of its neglect.
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> Structural arrangements, organisation, is, of course, physics; we find it playing a very great rôle in physics as that science advances. The properties of atoms depend upon the arrangement of electrons, of molecules on the arrangement of atoms, of crystals on the arrangement of molecules. In organisms there is a great extension of this. They are bodies in which the arrangements have become complex and differentiated, and have passed into the grosser, the visible features as well as in the finer details. They are bodies in which there is an almost infinite variety of these arrangements, as we pass from species to species. They are systems of structures. In consequence their properties and the way they respond to experiments depend largely on these systems."

This address so admirably explains the real significance of morphology as the foundation of all science, physical as well as biological, that it is hardly necessary for me to add to it. In particular he has shown how many veins of experimental research have petered out. Many of the problems were suggested by morphological considerations and most of the results do not attain conclusiveness until they find confirmation from anatomical evidence. For example, Sir Charles Sherrington's definition of reflex action, the summary of an extensive chapter of physiological experimentation, is expressed in terms of the structures involved. The disparagement of anatomy extends also to morbid anatomy, and at the present time in many schools, with a few conspicuous exceptions, medicine and surgery are suffering from the neglect of adequate morphological tests of the reasons for diagnostic and therapeutic failures.

The eponymous label attached to this lectureship is not without interest. Thomas Vicary was the court surgeon of the Tudor kings and queens, and he left behind him an obsolete treatise on scholastic anatomy, based upon the writings of Lanfranchi and Mondeville in the fourteenth century, which completely ignored the revolution that had been effected in the whole outlook and discipline of anatomy by Vesalius 20 years before Vicary's death. Like Thomas Vicary, the anatomist at the present day has retained in his teaching an undue amount of mediæval method and material that has no justification either on the ground of its practical or scientific value. In paying respect to these antiquated conventions—the writings of earlier bookmen rather than what the human body itself reveals—he has neglected the great opportunity of bringing the subject of anatomy into closer corelation with the needs of the times. In spite of the century-old complaint that there is nothing more to be done in anatomy—as Barclay said in the eighteenth century: Anatomists are like geese picking up the stray grains left by former reapers—the possibilities for great achievements in anatomy were never so great as they are to-day; and the need for men who will devote their whole time and energies to the exploitation of these rich veins of ore was never so urgent as it now is in England. It was a great step forward when a generation ago men were appointed to devote their whole time to research and teaching in anatomy. The problems to be solved are so complex and the technique of inquiry so exacting that those who work at the subject must be wholly absorbed in it.

[After summarily describing the development and course of anatomical study from the Ptolemaic School of Alexandria to Galen, Prof. Elliot Smith referred to the special influence of the work of such anatomists as Harvey, Sharpey, and John Hunter. He continued:—]

The late Mr. Stephen Paget refers to the work of William and John Hunter on the lymphatic system as a new truth of vast importance, second only to Harvey's discovery of the circulation of the blood; and in estimating its significance he uses the words so many writers have applied to Harvey's achievement: "It changed the whole character of medical science and practice." That the lacteals, which carry food-products into the blood, were absorbent vessels, men knew already; but they had not realised that the whole body, every organ and tissue of it, is penetrated and drained by a special system of vessels to bring the fluids in the tissues back into the

blood stream. It is not necessary for me to say anything to impress upon this audience the importance of the lymphatic system in surgery and the value of the pioneer work of the Hunter brothers. A vast amount of detailed work on the lymphatic vessels and glands has been accomplished in recent years and valuable light has been shed, especially by our American colleagues, upon their developmental history. But the satisfactory solution of the controversies that have arisen as to the interpretation of the meaning of these observations will not be attained until we return to comparative methods and study the phylogeny rather than the mere ontogeny of the system.

The brilliant research on the lymphatic system of *Lophius* that has recently been accomplished in this Museum by the Physiological Curator, Mr. Richard H. Burne, is an encouraging sign that this great work is being carried on in its appropriate setting.

CHARLES DARWIN.

If Harvey introduced a new era in medicine and Hunter in surgery, Charles Darwin gave the whole world of learning a new outlook. The recognition of the reality of evolution effected a revolution not simply in biology, but in every field of intellectual work. Although Darwin's work was inspired primarily by what we now call nature studies, it is clear that the foundation of the argument, without which he would not have been able to convert people to accept his views, was represented by the facts of comparative anatomy and embryology. He himself says in the "Origin of Species" that morphology is the soul of natural history.

Darwin's achievement gave a new orientation and a new meaning to morphology. What is not generally recognised by physiologists at the present time is the vast scope of evolution and the significance of processes that took many millions of years to effect. They do not seem to appreciate that only an altogether insignificant fraction of the great natural processes is susceptible of experimental inquiry. When they ask what use can be assigned, say, to the morphology of the lizard's chondrocranium they thereby show a failure to appreciate that the great story of evolution is based upon the linking-up of the facts of morphology and palæontology. No full understanding of the behaviour of man or any experimental animal can ever be attained without a knowledge of his or its origin and evolution.

THE CELL THEORY.

What Prof. E. B. Wilson calls a milestone of modern scientific progress—the cell-theory enunciated by Scheiden and Schwann in 1838–39—stands forth as one of the greatest achievements in biology, which marked the beginning of a new era in knowledge and its application in practice. Goodsir, Virchow, and their successors used this conception for the analysis of the structure of organisms, and in doing so opened far-reaching vistas of progress in every department of biology and medicine. In more recent times the evidence afforded by the behaviour of chromosomes afforded anatomical corroboration of the results of experimental breeding and compelled even the geneticists to admit that morphology had its uses.

THE PRESENT POSITION OF ANATOMY.

Even if anatomy had achieved nothing more than make vital and essential contributions to the great revolutions in thought effected by William Harvey, John Hunter, William Sharpey, Rudolf Virchow, and Charles Darwin, its place in the forefront of progress would be established. But its claims are much wider than that. Its influence was, in fact, universally felt in the advance of civilisation. It is not, however, the place of anatomy in history with which I am chiefly concerned to-day. It is rather its present position and future development that I want to discuss. In your museum the word physiology is, significantly enough, used to connote comparative anatomy. This unusual usage expresses an important truth. For no method more clearly reveals the functions of structures than the correlation of their varying size and structure in animals of differing capabilities.

In his comparative study of the heart, and in particular of the bulbus cordis, the present conservator of the museum has shown, perhaps more clearly than in any other of his numerous works, that the spirit of John Hunter is still alive here. For the use of comparative anatomy, in conjunction with the study of the functional meaning of the varying arrangements, to illuminate the normal morphology and pathological states of the heart would have delighted the founder of the museum. Sir Arthur Keith's greatest service to science, however, has been his persistence in keeping constantly before the anatomist the urgent need for the study of function as an essential part of the interpretation of structure. From its foundation the principle has been emphasised in your museum. The use of the term "physiological series" for the collection of comparative anatomical preparations is a happy illustration of the real spirit of Hunter's work.

Take, for example, the case of the cerebellum, which I discussed in the Arris and Gale lectures in this room six years ago. Some physiologists (for example, Prof. Magnus in his Croonian lecture to the Royal Society this year) are now proclaiming that their experiments do not reveal any functions for the cerebellum; but anyone who walks through the gallery of this museum, where the wonderful collection of vertebrate brains is exhibited, can see for himself that Nature's great experiments in modes of posture and locomotion have left their impress so clearly in the cerebellum that he who runs may read. So also in the morphology of the brain as a whole the varying sizes and histological structure of its parts express the habits and capabilities of animals and reveal the broad lines of their functions.

In his great treatise on the "Integrative Action of the Nervous System," which opened a new era in the interpretation of the brain's meaning, Sir Charles Sherrington calls the cerebrum "the ganglion of the distance-receptors," by which are initiated and guided long series of reactions of the animal as a whole. Unfortunately he did not avail himself of the facts of comparative anatomy to elucidate and reap the full harvest of his illuminating idea. Here, again, it requires no difficult technical procedure or abstruse knowledge to discover facts of fundamental importance which have escaped those who neglect to give due consideration to comparative anatomy. It is only necessary to look at a comparative collection of brains such as this museum contains to see at a glance that the most primitive type of cerebrum is not equally the ganglion of all the distance-receptors, but predominantly the one concerned with smell. The part of the brain that eventually became the organ of mind is primarily a receptive centre for olfactory impressions, and the instrument whereby such experience can influence behaviour. The whole arrangement of the brain is dominated by this fact, which is fully borne out by experiments on the dog-fish, such as those of Prof. Parker, of Harvard University.

Considerations of structure cannot be ignored with impunity by those who aim at understanding function. After all the aim of experiment is to interpret the working of an instrument, and the mode of construction of that instrument cannot be neglected. But it is not only morphology that is essential, but also considerations of phylogeny, the relative place in nature and affinities of the experimental animal, the appreciation of which is based upon morphology. In all investigations considerations of evolution are matters of fundamental importance and are especially significant in the case of the nervous system, which undergoes profound changes in the course of its history. In such researches as those now being carried on by Prof. Magnus and his collaborators, the difference of behaviour in various grades of animals are being forced upon their attention. But the full fruits of much patient work are being lost by

many physiologists from their neglect of the phylogenetic factor.

THE NEW OUTLOOK IN ANATOMY.

As knowledge advances in physiology, pharmacology, biochemistry, and clinical medicine and surgery a host of new problems arise for the solution of which anatomy provides in many cases the means of solution and in all cases the coping-stone of objective demonstration and becomes the last court of appeal for its validity—the translation of elusive modes of reaction into the concrete terms of structure.

Experimental physiology aims at explaining the behaviour of living organisms and tissues, and if it is successful its results must be expressed in terms of the constitutions of the organism and its parts. Morphology is not only the foundation of experimental research—the territory in which the work is done and the study of the physical properties of the material investigated—but it also affords the ultimate test of the significance and validity of the results attained. Hence both kinds of investigation are essential and complementary the one to the other. The morphologist and the physiologist should work in close coöperation, the one with the other, and the clinician has opportunities for applying their results and making fresh observations suggesting new problems for the morphologist to investigate. How fruitful this coöperation of workers in the three fields can be is shown by recent research in neurology, by such bridge-builders as the Dutch investigators, Magnus and Brouwer, who in different domains of neurology have revealed the importance of the combination of morphological, experimental, and clinical methods in dealing with complex problems.

One could multiply examples almost without limit of the obtrusive part taken by theories of bodily structure, in particular of the heart and brain, in the building up of systems of philosophy and incidentally in effecting great reforms in knowledge. But it can also be shown that a lack of anatomical knowledge at certain epochs in the history of civilisation was responsible for hampering progress. In 1674 Malebranche (Recherche de la verité) expressed his belief [1] in the existence of vasomotor nerves (Nerfs qui environnant les artères pour fermer, par leur contraction, le passage au sang qui montre vers le cerveau, et l'ouvrir par leur relâchement à celui qui se répond dans toutes les autres parties du corps), but he lived two centuries before men had sufficient knowledge of bodily structure to appreciate all that was involved in this precocious intuition of genius.

Because anatomy had not prepared the way, for instance, the understanding of the injuries that produce aphasia had to wait for three centuries. In the year 1558 Nicholas Massa published an account of a case of traumatic aphasia, which disappeared after operation. The patient received a blow from a halberd that perforated the base of the skull and penetrated the meninges and brain, into which a fragment of bone was driven. He makes the comment, which in the mouth of a surgeon has a very modern and familiar ring about it, that the physicians had not noticed the depressed bone. Massa assumed that the loss of voice might be due to the pressure on the brain of the piece of bone he had detected. Hence in the presence of the physicians and other onlookers he proceeded to remove it. To their intense astonishment the patient at once recovered his speech.[2]

It was not until the beginning of the nineteenth century that, as the result of anatomical observations, Joseph Gall was able finally to demolish the old theory of animal spirits, and to prepare the way for the admission of the realisation of cerebral localisation. In a work published in 1818 Gall recorded a case of traumatic aphasia such as Massa had seen in 1558—an officer who received a sword thrust just above the left eye and lost "the memory for words." But it took more than another half century before physiologists and clinicians were willing to admit the reality of localisation, and then only when the genius of Hughlings Jackson and Broca and the experiments of Fritsch and Hitzig, Ferrier and others, had given the observations an anatomical setting by assigning to definite areas of the cortex the control of certain movements. The history of these 50 years is told in full by Dr. Henry Head in his great treatise on Aphasia and Other Disorders of Speech (1926).

With reference to the question of cerebral localisation it will be common knowledge that the histological investigations of Dr. Bevan Lewis from 1869 onwards established the fact of anatomical localisation. Yet Lewis's important work was brushed aside because the precise results obtained by him seemed to come into conflict with those obtained by experimental investigations. The difference in structure between the pre- and post-central convolutions of the brain was completely over-ridden by the fact that Sir David Ferrier and others obtained responses to electrical stimulation from both convolutions. It is important to remember that when Sir Charles Sherrington in 1900, using a more exact method of investigation, was able to prove that the post-central convolution was not excitable, the method of histological localisation was restored to favour, and the work which Dr. Bevan Lewis had begun more than 30 years previously was taken up with renewed vigour, and yielded some of the most significant additions to our knowledge of cerebral structure.

THE SYMPATHETIC NERVOUS SYSTEM.

The new chapter in the history of medicine created by the work of Gaskell, Langley, and Anderson on the sympathetic system was based essentially on anatomical investigations. Even the experimental part of their researches had as its chief objective the mapping out of the structural arrangements of this system. At the present time the question of the practical and clinical applications of this knowledge is the subject of lively controversy. There are grave differences of opinion in respect of almost every aspect of these problems. But in the long run the issue will be settled by the facts of anatomy. When we know more of the structure of the nerves passing to muscles and their connexions in the central nervous system, the decisive evidence for the solution of these difficult problems will have been attained. In respect of this matter the morphological outlook comes into direct conflict with the attitude taken up by many of those who rely solely on experimental evidence. It is generally admitted that muscles have two more or less distinct functions to perform, contraction and maintenance of posture. The brilliant investigations of Sir Charles Sherrington have demonstrated beyond question that posture is automatically regulated by means of proprioceptive reflex arcs. It is also admitted that in invertebrates there are separate and distinct muscles for performing these two functions, even though the movements of the animal are slow and clumsy.

To the morphologist, in whose outlook ideas of evolution loom more largely than they do to the mere experimentalist, it seems in the highest degree improbable that vertebrate animals, in which muscular activity attains a much higher degree of rapidity, skill, and complexity than it does in most invertebrates, there should reveal no corresponding differentiation of muscles and nerves for carrying out these two functions. For 50 years it has been known that there is a duality of innervation. We know that there are differences in muscular fibres—the thick and the fine—the relative proportions of which are responsible for the obtrusive differences in colour between red and white muscles. It seems, therefore, if one applies the morphological argument in the

[1] Quoted from Jules Soury, Système Nerveux Central, 1899, T. 1, p. 407.

[2] This case of Marcus Goss is reported in Nic. Massae Epistol. Medicinal., II., 90–91. Venetiis 1558, and a similar case in Fr. Arcaeus, *De recta curandorum vulnerum ratione*, 62–27. Antverpiae, 1574. My attention was called to these surprising records by the reference to them in Jules Soury, Système Nerveux Central, 1899, T. 1.

highest degree probable that the greater efficiency of the vertebrate muscle may be due to the fact that the two kinds of muscle-fibre, instead of being separate as they are in invertebrates, are intimately blended to form composite muscles.

We know that in the case of the viscera there are two functionally distinct groups of nerve-fibres, and it seems again highly improbable that the voluntary muscles, which have automatic functions to perform like those of the involuntary muscles and in addition the highly complex reactions associated with willed movements, should be less well equipped for these more complicated functions than the simpler muscles. It remains for anatomical studies to provide the explanation of the conflicting evidence derived from experiments and surgical operations.

SOME PRACTICAL APPLICATIONS.

In spite of the widespread neglect of morbid anatomy the development of cytology and the recognition of its fundamental importance in the investigation of cancer is bringing an increasing number of pathologists back to morphological studies.

An interesting application of such knowledge is now being made in clinical surgery, in which observations in the cytology of cancer (such as were made years ago by Sir G. Lenthal Cheatle) are being used by Dr. McCarty in the Mayo Clinic to determine the prognosis in cases of carcinoma.

Some observations that my colleague, Dr. H. H. Woollard, has been making on the neuro-muscular lesions of so-called beri-beri induced experimentally by depriving rats of certain vitamins, suggest that in the last resort the evidence afforded by the structural changes in muscles and nerves cannot be neglected in any estimate of the effects of food deficiency. This impression is even more emphatically confirmed by the observations on bone-growth by another of my colleagues, Dr. H. A. Harris. He has been able to demonstrate by anatomical studies that any diminution of the growth processes of the body (such as normally occur during the week after birth and in certain phases of puberty, as well as in grave illness, or even deprivation of a diabetic patient of his dose of insulin), will cause an opaque line to make its appearance in X ray photographs of bones. This has been mistaken for, and used as, a diagnostic sign of healed rickets, and the work of many observers has been vitiated by erroneous interpretations of the effects of vitamins, &c., on bone growth. Such results indicate that morphology provides criteria by which the influence of the various vitamins on growth and metabolism will in the future be tested—as for some years Prof. Herbert M. Evans in California has been doing—by their potency.

The knowledge of the arrangements of the tracts in the spinal cord that has been acquired within recent years seemed at first to have little more than an academic interest, or at most a use in diagnosing lesions beyond the scope of treatment. But in 1911 Dr. Spiller suggested that the knowledge could be put to the humanitarian purpose of relieving the terrible sufferings of patients with inoperable cancer. In the *Archives of Surgery* three months ago, Dr. M. M. Peet has described the truly wonderful results obtained by cutting that part of the antero-lateral column of the spinal cord which conveys impulses provocative of pain. Thus the unfortunate victims of incurable disease can get relief from their suffering without the resort to drugs, and at the same time retain other forms of sensibility and so be unconscious of the loss.

During the last ten years thorough investigation of the effects of nerve injuries in soldiers and the correlation of evidence so obtained with the facts of anatomy has enabled Prof. Stopford to extend and clarify our knowledge of the arrangement of the sensory nerves, and has given the surgeon new and exact methods for the diagnosis and prognosis of nerve lesions. Only four years ago the pancreas used to be cited as an example of an organ which when diseased could give rise to such profound changes in the whole organism as we know in diabetes without revealing any structural indications of disease. But we now know that this is no longer the case. The morphological changes in the islands are clear enough once one knows where and what to look for in the way of morbid change.

The identification of the anatomical localisation of the lesions of encephalitis lethargica and morphological studies to determine the sites of injuries to the midbrain and hypothalamus that in experiments and clinical cases give rise to definite reactions of body and mind will eventually give us a new insight into the physical factors concerned with personality, but also the neural processes concerned with the manifestations of the common symptoms, such as raising of the body temperature, nausea, &c., in grave constitutional diseases with which every medical practitioner is daily concerned.

These instances chosen at random are enough to indicate that in the near future anatomy promises to become the stepping-stone to a new revelation of knowledge which will illuminate the whole field of human endeavour.

In this address I have endeavoured to suggest the vastness of the opportunities that now present themselves in anatomy and how vitally they affect the progress of surgery, not merely the mere craft of operating, but also the wider problems of diagnosis, prognosis, prevention, and treatment. This College has the power actively to promote progress in these lines, which I hope you will permit one who is beyond the pale of your membership to mention. By means of the primary examination for its Fellowship it can insist that the rising generation of British surgeons is inspired with the true spirit of understanding of the human body and is alert and open-eyed to appreciate the great vision that is about to be revealed. Instead of helping the persistence of mediæval conceptions of anatomy, it can encourage a kind of anatomy that is in organic touch with really vital problems.

The College has in its great Museum the most valuable instrument for promoting the study of anatomy on right lines. The growth of the collection started by John Hunter is one of the great scientific achievements of the last century, and under the direction of Sir Arthur Keith the opportunities for the comparative study of anatomy have been brought to a higher pitch of efficiency than ever. The College has it in its power to induce the candidates for its Fellowship to avail themselves of this wonderful instrument that is now too much neglected, and in doing so it will enhance the importance of the College itself and raise the standard of the science and practice of surgery.

LONDON CLINIC OF PSYCHO-ANALYSIS.—This clinic has recently been opened at 36, Gloucester-place, W. 1, for out-patient treatment by psycho-analysis. The clinic is intended to bring a method of treatment that is lengthy, and therefore expensive, within the reach of those who cannot afford the usual, or indeed any, fees. It will also afford an opportunity for the training, under supervision, of medical students and practitioners who desire to specialise in this branch of work. The staff consists of the following honorary physicians: Ernest Jones (hon. director), Douglas Bryan, E. M. Cole, M. D. Eder, E. Glover, M. B. Herford, W. Inman, Sylvia M. Payne, R. M. Riggall, W. H. B. Stoddart, and John Rickman (hon. secretary).

NORTH AND EAST RIDING MEDICAL BENEVOLENT SOCIETY.—The Medical Benevolent Society for the North and East Ridings of Yorkshire and the City of York recently held its eighteenth annual meeting at York. The financial statement showed that there was a satisfactory balance in hand, and the trustees were directed to make a further investment from the funds of the society. The objects of the society are to give assistance to its members or their families where it may be needed owing to death, illness, or other disability. It was felt that the work of the society was not sufficiently known amongst the profession, and steps are being taken to bring its claims before all practitioners in he district,

STUDIES IN BLOOD-SUGAR.

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AND
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THE introduction by MacLean and others of simple methods by which the amount of sugar in a small quantity of blood could be accurately and quickly estimated has completely altered medical work on diabetes and glycosuria.

The use of insulin in the treatment of diabetes has necessitated the application of blood-sugar estimations in the treatment of almost every case. This is necessary first, for the differentiation of cases of renal glycosuria, to determine the renal threshold for sugar, and second, in the course of insulin treatment to control the dose, more particularly when sugar has disappeared from the urine. Increased knowledge of any disease usually brings with it the possibility of earlier diagnosis, and this is particularly true in diabetes, where the term "potential diabetic" is already in current use. The method by which such a condition is found is to estimate the patient's capacity to deal with a known dose of glucose taken by mouth after 12 hours' starvation, the blood-sugar being estimated before and at frequent intervals afterwards.

The test usually adopted is as follows. The patient takes no food during the night. The blood-sugar is estimated the next morning and 50 g. glucose are given in 100 c.cm. water. Thereafter the blood-sugar is estimated every half hour until six specimens have been examined. The urine before and after the test is also examined for sugar. The results may then be expressed on a chart with percentage blood-sugar as ordinate and time intervals as abscissa.

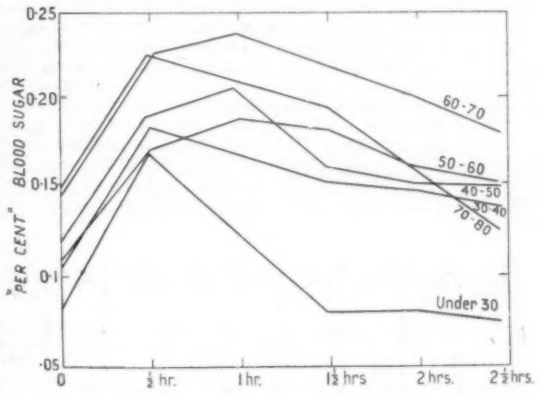
It is generally recognised now that the physiological response to 50 g. glucose during the early years of life—i.e., up to 30 years of age—will show a fasting blood-sugar level of 0·08 per cent., rising in half an hour to 0·17, but returning to the fasting level in one and a half hours, and that no sugar will appear in the urine. It is believed that the return to normal level is not due to cessation of absorption, but to the activity of the sugar storage mechanism, which appears to come into action at a concentration of 0·17 per cent. blood-sugar, which is also the renal threshold value for sugar. Authorities agree that some delay in this mechanism is usual as age advances, and it was with a view to obtaining some estimate of the amount of this physiological delay that this work was first undertaken at the suggestion of Prof. H. S. Raper.

Fifty normal individuals have been examined on the following plan: Ten cases in each decade, starting at 30 to 40, of mixed men and women were taken. Each case was starved overnight and the starving blood-sugar level estimated; 50 g. glucose in 100 c.cm. water were then given, and the blood-sugar estimated at the end of each half hour for two and a half hours, the urine being examined at the expiration of that time (see table). All the sugar estimations have been made by MacLean's method.

Age.	1	2	3	4	5	6
	Before.	½ hr.	1 hr.	1½ hrs.	2 hrs.	2½ hrs.
Under 30	0·080	0·170	0·125	0·080	0·080	0·080
30–40	0·105	0·184	0·174	0·153	0·150	0·140
40–50	0·120	0·192	0·207	0·165	0·155	0·152
50–60	0·146	0·225	0·218	0·195	0·166	0·155
60–70	0·145	0·225	0·238	0·245	0·205	0·185
70–80	0·115	0·175	0·190	0·185	0·165	0·130

Results.

The readings were averaged for each time-period and the results charted. The curves obtained are shown in the accompanying diagram which appears to demonstrate the following points: (1) That the starving blood-sugar level tends to rise from the normal 0·08 per cent. of youth to nearly 0·15 per cent. at 70 years of age. (2) That the actual increment of sugar-content of the blood, however, remains the same and is always less than 0·1 per cent. (3) That at the ages considered the highest point of sugar concentration is liable to be reached at the end of one hour, rather than at the end of half an hour as is usual in youth. (4) That there is an increasing delay in return to the starving level, which fails to occur in the two-and-a-half hour period of observation. (5) That in the decade 30 to 40 years of age urinary sugar in response to 50 g. glucose is not found, but in the decades above this glycosuria in response to this amount of sugar occurs in about 30 per cent. of tests, being rather higher in the decade 60 to 70 years of age, when it is nearly 40 per cent. (6) In the decade 70 to 80 the type of curve obtained differs greatly in that it does not rise so high, but takes considerably longer to return to starving level. No explanation of this is offered, but the patients were senile.



Conclusions.

From this it would appear that glucose tolerance curves should be interpreted not only from the point of view of the blood-sugar rise and the period occupied in returning to starvation level, but also with due regard to the age of the patient. The increased lag in the curve, apart from age considerations, might easily lead to an opinion of potential diabetes when in reality it is believed that the delay is the physiological result of age. This is particularly liable to be misleading in patients complaining of such troubles as pruritus and sciatica, which may or may not be diabetic in origin.

The smallness of the numbers examined must deprive these results of some of their value, but it is hoped that other workers may have similar figures to add and so increase the evidence which appears to have so important a clinical bearing. The possibility of administering glucose per rectum to cases of diabetic coma is so obvious when unconsciousness prevents voluntary swallowing that some evidence of adequate absorption becomes imperative. Blood-sugar curves taken hourly for four hours after the administration of 50 g. glucose with bicarbonate of soda in a 10-oz. enema have been made in ten cases; in two cases the observations were continued for six hours. In no case was any rise in the blood-sugar demonstrated.

It is therefore believed that glucose cannot be administered by this route with any reasonable hope of adequate absorption, and there is no evidence that glucose added to rectal salines is absorbed in sufficient quantity to raise the sugar-content of the blood at all.

THE ACTION OF ADRENALIN IN APLASTIC ANÆMIA.

BY ALEXANDER GEORGE GIBSON,
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THE term aplastic anæmia is not that of a disease but rather an anatomical type of disorder of the blood-forming organs. It includes several anæmias such as those arising from T.N.T. or benzole poisoning or from over-exposure to X rays; but the majority of cases have no obvious cause, yet apart from these specific diseases the term has its use in defining those types of anæmia in which the activity of the bone-marrow in restoring the red cells is deficient or absent. The characters of this anæmia are the absence of young and immature forms of red corpuscles in the blood, the great deficiency of platelets, a leucopenia due to deficient polymorphonuclears, and a pale gelatinous condition of the red marrow seen post mortem. The following case belongs to this type.

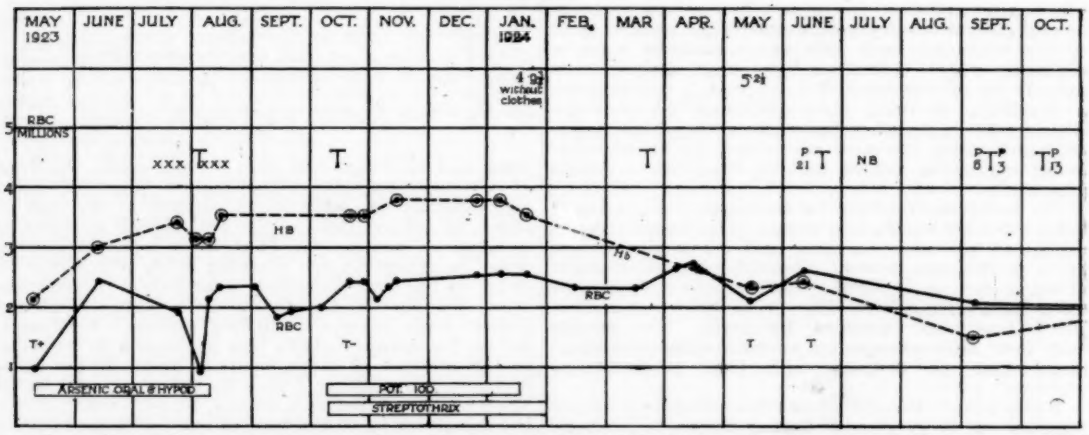
J. S., a girl of 11, began, in the spring of 1923, to look paler than normal and to suffer from bruises in various parts of the body which appeared without obvious cause. Early in May of that year she was taken to see Dr. George F. Still who, after seeing a careful report on the blood by Dr. Carnegie Dickson, gave a very serious prognosis, and she was sent home to be under the care of Dr. King Edwards, of Watlington, to be treated by arsenic subcutaneously and by the mouth, and by transfusion if her condition failed to improve.

The condition of the blood at this time was as follows (Dr. Dickson): R.B.C., 1,990,000 per c.mm.; W.B.C., 4850 per c.mm.; Hb. (Gowers), 42 per cent.; colour-index, 1·06. Differential count (per cent.): Polymorphs, 12·3 (total, 596·5); lymphocytes, 86·6 (total, 4200); large mononuclears, 0·0; eosinophils, 1·0. There was considerable anisocytosis, with excess of large pale forms of red cell. Poikilocytosis was also present. There were no nucleated red cells or punctate basophilia and the platelets were very scanty. No malarial parasites were seen.

Soon after this I was asked to see her with a view to a transfusion if the necessity arose. She was at that time a pale, delicate-looking child with rather a dark skin, especially of the abdomen; there were several bruises about the body, and a slightly enlarged liver and spleen. She had a small daily rise of temperature. There was nothing of note in the family history; both the father and mother were healthy. The patient had been born in India, where she had lived till the age of 7, but except for an attack of fever, thought to be malarial, there had been no serious illness.

Investigations were undertaken to search for some ætiological factor. An extended search revealed no malarial parasites in the blood, the blood culture was negative, two guinea-pigs injected with fresh blood suffered no inconvenience and showed no trypanosomiasis or spirochætosis. There were no parasites in the fæces and the urine was normal. It was then determined to try certain lines of treatment and ascertain by her general condition and that of the blood whether any improvement occurred. Arsenic for two months gave no general improvement, though the red cell count rose slightly. Six exposures to X rays were then given over the spleen without effect, if anything with slight deterioration in the blood condition. During this period the first transfusion of half a pint of her mother's blood was given by the citrate method. Two months after, in October, 1923, another transfusion became necessary owing to deterioration in her general condition. Her blood condition was also probably much below that shown in the chart, which does not show the state before but after each transfusion. Previous to this for three weeks a vaccine of a sarcina which had appeared in one of the blood culture-tubes was used on the chance of its being a remotely possible ætiological factor. After that potassium iodide and a vaccine of a stock culture of a *Streptothrix actinomyces* was used, with some slight improvement. The rise of temperature ceased during the early part of this treatment. After three and a half months there was clear evidence that the general trend of the disease was downward. She was given without benefit four intravenous injections of antimony tartrate on the possibility of kala-azar being a factor, and she was given a short course, also without effect, of quinine.

CHART 1.



The continuous line represents hæmoglobin. The second to the twelfth of these estimations (June, 1923, to January, 1924) were made by the Talquist scale and are probably too high. The rest are made by Haldane's hæmoglobinometer.

The interrupted line represents red blood cells. T = transfusion; τ = presence of temperature; P = menstruation, number of days; A = beginning of treatment by adrenalin; X = X ray treatment. The weight in stones and pounds is marked below the second horizontal line. N.R. = nucleated red cells seen in blood.

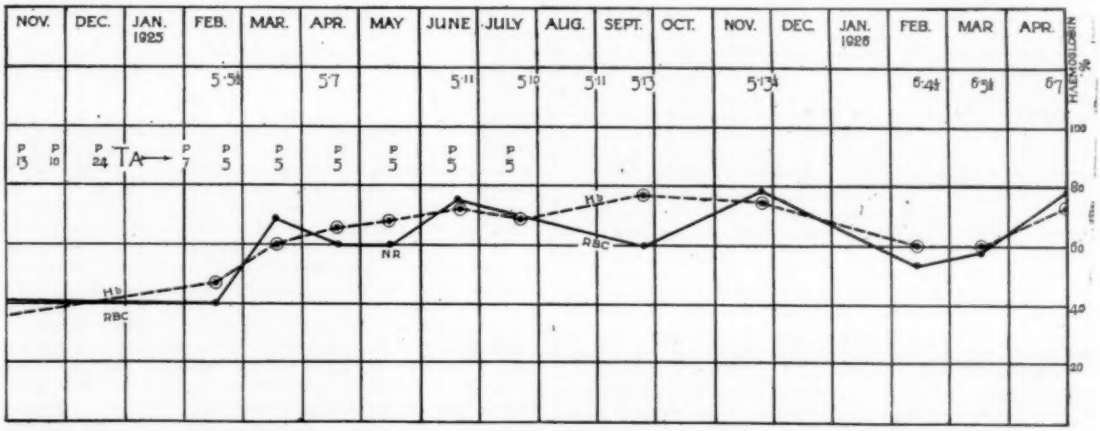
A third transfusion was given in March, 1924. In May, 1924, she was slightly heavier than in the January previous; in this month the temperature again showed a slight daily rise. In the June following, when at the age of 12, her first menstrual period began and lasted 21 days. During this the fourth transfusion was given. From this time her progress was steadily downwards. There was a bad attack of nose-bleeding in July, 1924. In September, 1924, she had two menstrual periods of six and three days respectively, between which the fifth transfusion was given. Another transfusion was given in October, 1924, and there followed a menstrual period lasting 13 days. In November there were two menstrual periods of 13 and 10 days respectively. In December, 1924, the patient was extremely ill, blanched, with many bruises, occasional nose-bleedings; a menstrual period during that month lasted 24 days. She was given her seventh transfusion at the very end of the month and I left the patient not expecting to see her alive again. The transfusion produced little effect. Pituitrin on the second day was given in an attempt to control the uterine hæmorrhage. The condition of the patient was desperate, and as a pure experiment suggested by her pigmented skin she was given daily subcutaneous injections of adrenalin (Parke, Davis and Co., 1/1000 solution), beginning with 2 minims and increasing gradually to 5 minims.

From the time these injections began improvement set in; the menstrual periods after one of seven days in February, 1925, have become regular five-day periods every

month. Her weight, which despite the severity of the illness had increased slightly, began to show a steady increasing rise, and in December, 1925, it had increased 8 lb. In the year beginning February, 1925, and ending February, 1926, she had put on a stone all but a pound in weight. General improvement in strength occurred with this and the patient gradually resumed normal habits with due care during the monthly losses. At the time of writing, July, 1926, she is a slightly made but otherwise normal girl of 14, a little paler than the average but able to run about and play with her fellows. The blood condition, however, has never returned to normal. The last count taken on July 15th, 1926, is as follows: R.B.C., 3,490,000; Hb., 72 per cent.; colour-index, 0·95; W.B.C., 4680. Differential count (per cent.): Polymorphs, 32·5 (total, 1521); small lymphocytes, 45·5 (total, 2120); endothelials, 16·5; eosinophils, 0·5; neutrophil myelocytes, 4·0; eosinophil myelocytes, 0·5; large lymphocytes, 0·5.[1]

The chart shows that since the adrenalin was used the red cells have varied between 3 and 4 million and the hæmoglobin between 60 and 80 per cent. The appearance of the red cells has altered; the size is more regular, polychromasia is present, and rarely an occasional nucleated red cell has been found, not seen previously.

CHART 1. (*continued*).



There has been a slight but significant change in the white cell count, as follows. The counts are the average of all records, 14 before and 11 after the administration was begun.

	Total leucocytes.	Polymorphs.	Lymphocytes.
Before adrenalin ..	2558	534	1439
After ,, ..	2894	971	1311
Normal average ..	5000	3250	1000

In all counts, therefore, there is evidence that the adrenalin has effected a change in the direction of, though not up to, the normal.

Remarks.

The patient whose story is given above has made an apparent recovery from a severe grade of aplastic anæmia of unknown ætiology, a type of anæmia almost invariably fatal. The beginning of the recovery coincides with the giving of daily injections of adrenalin, which has been continued, omitting one day in each week. It will be noticed that the blood count still shows some of the changes present at first—viz., diminution of leucocytes and of the total polymorphs—and both the red cells and the hæmoglobin are below normal; on this account it has not been thought desirable to omit the adrenalin for a period to ascertain whether the patient could maintain the improvement. There has been no deleterious effect of the adrenalin; the blood pressure has not been found above 120, there has been no hypertrophy of the heart, and no thickening of arteries. It is possible to argue that the recovery of the patient is due to natural causes such as occasionally happens, as in the case reported by J. Porter Parkinson.[2] In this case, however, the recovery was complete even to the blood count recovering its normal state. In the present case the recovery was evident within a week of giving adrenalin at a time when the patient's condition was extremely critical.

It is probable that the adrenalin acted as a direct stimulant to the bone-marrow of which some still remained to be stimulated. This action has been used with effect in rickets and osteomalacia.[3 4] Certain experiments made by Berchtold [5] bear on this case. Berchtold found that in large dogs adrenalin causes many more young forms of both red and white cells to be seen in the blood emerging from the nutrient vein of the tibia.

There is some evidence also that absence of the normal secretion of the adrenal gland may produce anæmia. Occasionally Addison's disease of the suprarenal is accompanied by a mild grade of anæmia. Hutchison [6] records that in the suprarenal sarcoma of children there is a profound secondary anæmia.

I have not had an opportunity of trying adrenalin in another clear case of aplastic anæmia; in those cases of Addison's anæmia (pernicious anæmia) in which I have tried it there has been no beneficial effect.

[1] A further blood count on Sept. 17th, 1926, gave R.B.C., 4,410,000; Hb., 81 per cent.; W.B.C., spoiled. Differential count: polymorphs, 41 per cent.; small lymphocytes, 54 per cent.; endothelial cells, 5 per cent.

[2] Proc. Roy. Soc. Med., Children's Section, 1918–19.
[3] v. Bossi: Policlinico, 1907, abstract only seen.
[4] Tanturri: Gazzetta degli Ospedali e delle Cliniche, 1907, abstract only seen.
[5] Arch. f. Exper. Path. u. Pharmacol., Leipzig, 1925, cv., 63; abstr. in Endocrinology, 1925, ix., 517.
[6] Quart. Jour. Med., Oxford, 1907.

LIVERPOOL HOSPITAL AMALGAMATION.—The amalgamation of the Liverpool and Samaritan Hospitals for Women has now been carried a step further by the laying of the foundation-stone of the new joint building, which is to provide accommodation for 120 beds at a total estimated cost of £120,000. Of this sum £61,000 has already been raised. Along with the recently opened Maternity Hospital this new institution will make very complete provision for the care in Liverpool of diseases peculiar to women.

COLOURING MATTER IN MILK.—The Lancashire county analyst, in his annual report, states that of 4539 samples analysed during the year 1925, under the provisions of the Food and Drugs Acts, 487 were found to be unsatisfactory, four-fifths of them being milk samples. He points out that anatto which is largely used in colouring cheese, is quite harmless in itself, but the effect of its addition to milk is to impart a fictitious appearance of richness, and where the milk is really poor in fat, to conceal inferior quality. The use of any colouring matter in milk is now contrary to law, although many vendors appear to be unaware of the fact.

EPIDEMIC ENCEPHALITIS IN DOGS.

BY LESLIE P. PUGH, B.Sc., F.R.C.V.S.,
HON. SEC., SECTION OF COMPARATIVE MEDICINE, ROYAL SOCIETY OF MEDICINE.

THE epidemic with which this note deals, including more than 50 fatal cases, was one of what veterinary medicine has long known as the nervous form of distemper. Its chief interest lies in the fact that the occurrence of a number of quite definite "lethargic" cases leads to a closer comparison than has hitherto been made between the human and canine disorders. From this comparison it appears that both in symptomatology and in the character of the cerebral lesions the two diseases are almost identical. This similarity is so close that we are forced to conclude either that the two are the same disease but in different animals, or, alternatively, that the lethargic and encephalitic symptoms are not in themselves entitled to rank as a "disease"—i.e., a morbid process associated with a single virus, but are merely a particular form of reaction to which more than one virus may give rise. The former thesis seems to be difficult to support with any but superficial evidence, and may probably be dismissed without more ado. The latter has much to recommend it, especially in view of the fact that the canine form is everywhere acknowledged to be but one aspect of distemper. It is fortunate that the other forms of distemper are striking in character—e.g., the bronchi-septicus pneumonia, the symptoms referable to the throat and digestive tract. The occurrence of epidemics in which the prevailing type has included one or more of these, but which have yet been varied by the presence of a few cases showing, in addition, nervous symptoms, is well attested. It is, therefore, easy to conclude, indeed, no veterinary practitioner has ever supposed it otherwise, that the nervous aspect of distemper is merely one form of reaction among several to which the virus of distemper may give rise.

But with regard to the human form of epidemic encephalitis there is no such general agreement. It is true that there is a school of thought which regards it as bearing some such relation to influenza as does the canine form to the primary catarrhal type of distemper. But these views have not hitherto been supported by any such striking analogy as it is here sought to adduce, and have not gained wide acceptance. It is, however, noteworthy that very few have cared to deny in toto the validity of the evidence brought forward, and the arguments of those who have opposed this connexion are such as to leave the question still sub judice.

It is such considerations as the above which have suggested that the particular epidemic dealt with herein may have a medical and even an epidemiological rather than a purely veterinary interest. The line of argument which it seems to suggest, and which more expert pens will perhaps see fit to debate, is briefly as follows:—

(*a*) An epidemic of the nervous type of distemper has been observed in which persistent sleepiness, ocular palsies, hiccough, and other clonic spasms, together with changes in disposition, &c., have been evident.

(*b*) The lethargic cases have shown typical "cuff" lesions in the brain, minute hæmorrhages, major incidence on the basal ganglia, &c.

(*c*) Both symptoms and lesions are so exactly similar to those of the human disorder known as epidemic encephalitis that the identity of the two diseases, distemper and encephalitis, might well be considered.

(*d*) For various reasons such identity is improbable, and we are thus led to the conclusion that the encephalitis syndrome is not a disease per se—i.e., ætiologically regarded—but merely a type of reaction which may be evoked by more than one virus, for example, by those of distemper and of human encephalitis.

(*e*) In the case of distemper the same virus may in different epidemics give rise to other reactions—e.g., the pneumonic, the gastro-intestinal and cutaneous, &c.

(*f*) In the case of encephalitis lethargica of human beings no such forms have been described, except by those who associate it with influenza, which, like distemper, has a "standard" relatively mild catarrhal type, and at least one other well-marked type, the pneumonic.

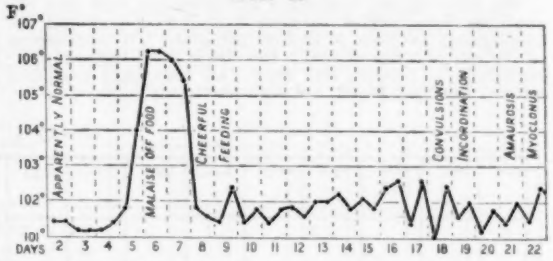
(*g*) Such argument as may properly be drawn from analogy is therefore in favour of those who regard epidemic encephalitis as a phase of influenza.

Details of an Epidemic of Distemper of Nervous Type.

The epidemic occurred at Sevenoaks, March to July, 1926.

Primary Stage.—This lasts from a few days up to three weeks, averaging ten days, before the onset of localised nerve changes. The usual symptoms were weakness, shivering, depression (Fig. 1), and high fever for two or three days, then a lower and intermittent temperature, conjunctivitis, salivation (mucinous),

FIG. 1.



naso-pharyngitis, rapid pulse, muscular and neuralgic pains, vomiting and thirst, constipation at first, but later diarrhœa in a proportion of cases. Occasionally none of these symptoms was actually observed, the first recognised indication of trouble being the sudden onset of convulsions or other nervous phenomena. In still other cases these nervous changes seemed to make their appearance only several weeks or months after a mild primary stage, whilst a considerable number of dogs showed the primary stage and then recovered without obvious nerve changes.

Secondary or Nervous Stage.—The description of this stage is no easy task. It is true that the clinician soon learns to recognise particular types, but it is also true that some cases change from one type to another, and there are many aberrant types which almost defy classification. Nevertheless, some form of classification has been found inevitable, and it has seemed better to base this rather on the mode of progress in each case than on particular symptoms.

(*a*) *Hæmorrhagic Type.*—A most acute fulminating type.

(*b*) *Transient Type.*—The characteristic of this type is the rapid and complete disappearance of symptoms within a few days. Thus a dog might one day show neuritic pains in one limb together with paresis, the next day another limb might be affected, and after that no symptoms of any sort persisted. In another case there might be for two or three days very definite myoclonus, and thereafter complete recovery. This class also includes certain cases with curious psychic symptoms, of which the tendency to run away like a rabid dog until overtaken by a convulsive attack was one of the most surprising. The psychic symptoms might equally be of a more negative type, the dog hiding under chairs or tables and shunning mankind, &c.

(*c*) *Relapsing Type.*—In general this type was either neuritic or myoclonic (Fig. 5) or both, the characteristic feature being the tendency to periodic recovery and relapse. Not infrequently it eventuated in a paralytic phase.

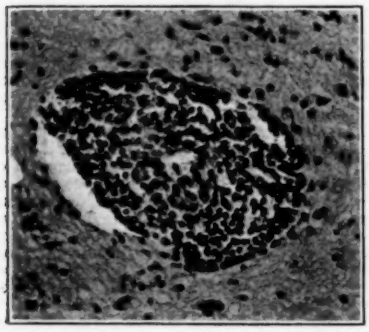
(*d*) *Paralytic Type.*—In this paralysis, commonly of the hind limbs, was an early symptom. This paralysis was flaccid, and considerable wasting was present.

(*e*) *Progressive Type.*—Here there are two subtypes, widely different in their symptoms, but alike in that they progressed fairly rapidly to a fatal termination. The first subtype is the

Lethargic type. The symptoms were usually lethargic at an early stage, as some of the case-histories show, but in Case 16 the disease first manifested itself by paralysis of the hind limbs, then affected the forelegs, and finally gave rise to typical lethargy and death. Case 10, a black mongrel terrier aged 2 years, was presented for examination. Temperature 102·5° F., rapid pulse, and injected conjunctival blood-vessels. A tentative diagnosis of distemper made. Two days later a slight pharyngeal cough developed. Nine days after the onset of malaise the dog appeared very drowsy. Although he appeared to spend most of his time standing up, yet he continually "nodded off" to sleep in

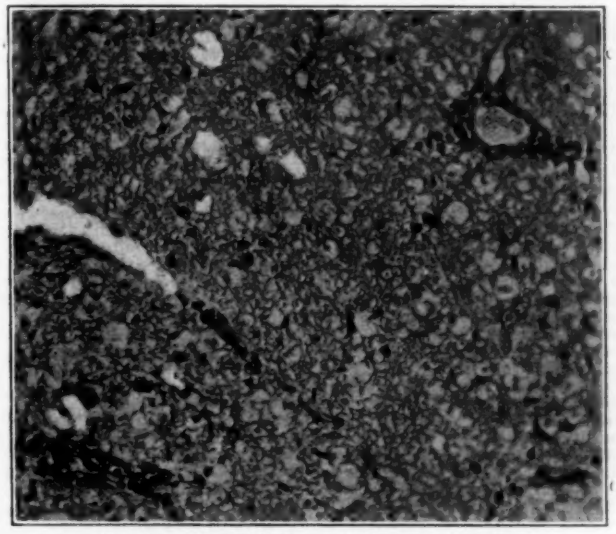
this position. At other times he would be found asleep leaning against the wall. If spoken to he would awaken, but doze off again within a few minutes. If forced to move he did so with slight incoördination of movement. Nystagmus present. He died in deep coma four days later. Histological examination of the brain in this case revealed lesions identical with those found in epidemic encephalitis. (See Figs. 2, 3, and 4.)

FIG. 2.



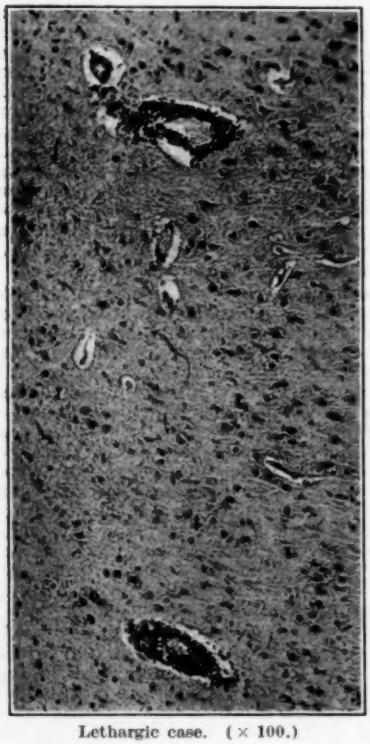
Perivascular cuff in basal ganglia region in case showing profound lethargy and coma. (× 200.)

FIG. 3.



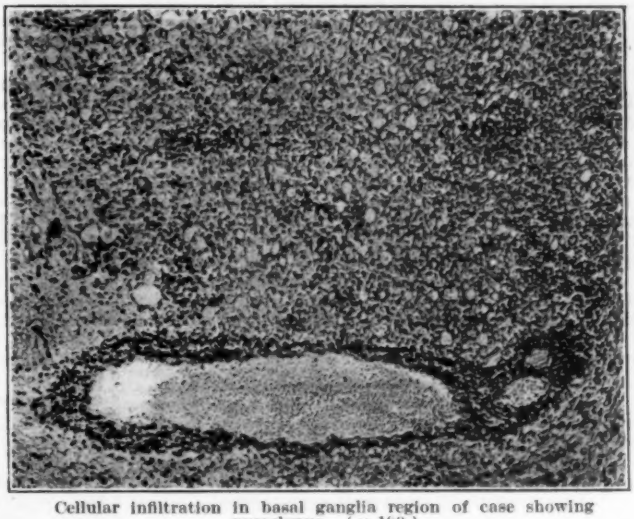
Case 24.—Cranial lesions. Lethargic. (× 200.)

FIG. 4.



Lethargic case. (× 100.)

FIG. 5.



Cellular infiltration in basal ganglia region of case showing myoclonus. (× 100.)

(2) The cerebellar type.—The cases in this group presented a curious form of head retraction. They had the appearance of continual effort to draw the back of the head more and more down on the spine. They commonly fell over backwards. They showed more often than other groups acute tenderness behind the ears, and such eye troubles as failure of accommodation, nystagmus, and definite strabismus were often seen. These dogs behaved as if blind or partially so. They were definitely ataxic.

Sequelæ.—Most acute cases, if not fatal, were destroyed owing to the change in temperament and physical changes encountered. After acute and progressive symptoms had long subsided some of the following might be observed:—

(1) Choreiform movements. Sometimes permanent, at other times intermittent, affecting any single muscle or group of muscles in any part of the body. These movements become more exaggerated when the animal is fatigued or excited.

(*b*) Paralyses, especially of hind limbs. This type commonly follows the peripheral neuritis cases, and although there is a definite tendency to recover slowly over a period of many months, residual paralyses did occur in some cases.

Complications.—(1) Herpes affecting the lips, conjunctivæ and eyes. (2) Gastritis or gastric congestion by no means uncommon. In some cases actual ulceration of the gastric and duodenal mucosa has been observed.

Mortality in those showing local nervous changes probably not less than 50 per cent.

Prognosis.—Very difficult. Some of the most severe cases, if persevered with, would apparently recover completely, whilst others showing the mildest or most transient of prodromal symptoms would terminate fatally. The progress of the disease itself is so variable from day to day that one dare not give any great hope, and even after apparent recovery, the animals' owners have to be warned against the

possibility of nervous phenomena arising should the animal become over-fatigued or unduly upset, overfed, &c., during the long convalescent period.

Macroscopic Changes.—The naked-eye changes in the nervous system are slight. The "milkiness of arachnoid," described by Da Fano and Ingleby, would be a very apt description of what one observes when the cerebellum is exposed in some of the more acute forms. Minute hæmorrhagic foci can frequently be detected in the region of the basal ganglion after a median incision, giving a "mottled" appearance. Such hæmorrhages are seen but less frequently in the cortex but were not noted in the meninges, the chief focus of infection would seem to be in the grey matter, although occasionally lesions could be found in the white matter.

Microscopical Changes.—Hall, in describing the histological changes met with in epidemic encephalitis, states:—

"The virus shows 'its most arresting change' (Miller) in the reaction of the blood-vessels. These are both vascular and perivascular, and occur chiefly 'round veins of a certain diameter, above all, round precapillary veins' (Marinesco). The vein is 'surrounded by a sheath of varying thickness, consisting of deeply stained nuclei of a round appearance' (Marinesco). This perivascular infiltration or perivascular 'cuff' is a regular phenomenon. The infiltrate occupies chiefly the Virchow-Robin space, and is composed of mononuclear cells. . . . Whilst the fibres of the vessel wall are dissected by the cellular infiltrate and the perivascular lymph space distended by it, the intima in most cases remains intact. . . . Besides the perivascular cuffs or adventitial infiltration, the affected areas are characterised by the presence of small scattered masses, microscopical in size, each composed of more or less loosely packed collections of small round cells." (See also THE LANCET, Jan. 2nd, 1926, p. 29.)

This description is equally true of the encephalitic form of distemper. It may, however, be noted that the "cuff" changes were generally very well marked both in the cranial and cord structures, and that there was no sign of polynuclear cells placed perivascularly. It should also be noted that apparently pure cranial cases show cord lesions.

Bacteriology of Distemper and Influenza.

In conclusion, one may perhaps be permitted to comment on the bacteriology of the pneumonic forms of distemper and influenza. That occurring in distemper is usually due to the *B. bronchi-septicus*, but the view that distemper is due to a filter-passing virus is now so general (Distemper Commission findings) that the *B. bronchi-septicus* is regarded as a secondary invader. It seems (F. W. Andrewes, see Official Report on 1918 Epidemic) that Pfeiffer's bacillus has a somewhat similar position in relation to the causation of influenzal pneumonia, and it may be that a virus will presently be demonstrated which will clear the situation. The parallel between the two diseases would appear to be too close to be disregarded.

HALOGEN ERUPTIONS.

BY ARTHUR J. HALL, M.D., F.R.C.P. LOND.,
PROFESSOR OF MEDICINE, UNIVERSITY OF SHEFFIELD, AND SENIOR PHYSICIAN, SHEFFIELD ROYAL HOSPITAL.

IN THE LANCET of Oct. 16th (p. 803) Dr. H. C. Semon records an unusual case of iodide eruption, following a comparatively small dose of the drug, as a matter of fact, 10 grains altogether. His interesting account of the case, and the illustration which accompanies it, reminds me of a similar one which I saw nearly 30 years ago. As cases of this severity are so rare and so disturbing when they occur, I venture to quote a short account of it, which was published in 1906[1]:—

In 1898 I was asked by a medical man to see a case with him of very severe anthracoid acne in a young woman, the subject of subacute nephritis. She had been progressing satisfactorily until May 8th, when she was given a 3-grain dose of iodide of potassium. This was repeated three times during the next 24 hours, so that she took altogether 12 grains of the drug. On May 10th a rash appeared on the face, as a papule on the right lower eyelid. This gradually enlarged and more similar papules appeared on other parts of the face. I saw her first on May 13th, when her condition was as follows. Under each eye there is a semicircular, papillomatous, tuberose swelling completely filling the lower lid pocket. These are extremely tender and painful, very vascular, and covered with a kind of crust. On removing a portion of crust there is profuse bleeding of what appear to be elongated papillæ. Similar tense rounded tuberous swellings are situated here and there on the nose and cheeks. On the right side of the tongue at its edge there is a pointed oval projection about the size of half an almond. It is extremely painful and causes the tongue to be protruded to the left. It is smooth and tense, and looks like a small tongue growing out of the large one. This occurrence of a lesion on the tongue, similar to those on the face, has, so far as I am aware, not been previously observed. In one case, recorded by Morrow, the tongue and fauces were extremely congested. On May 18th the patient's condition was very distressing, the repeated severe bleeding, whenever the spots were dressed, and the pain and discomfort of them were very great. On May 28th pericarditis developed and she died a few days later.

It will be noticed that in this case there was a definite involvement of the tongue, which added considerably to the pain and discomfort caused by the eruption. At the time I saw this case it seemed probable that the presence of seriously defective kidneys played some part in the occurrence of this reaction so out of proportion to the small amount of the drug taken—namely, 12 grains in all. For some time after this I felt some hesitation in giving iodide of potassium in cases suffering from nephritis. However, since then I have often seen it given in such cases by others, and have prescribed it myself without any such untoward results, and it seems clear that this peculiar effect of the drug is really an individual idiosyncrasy, whatever that may imply, and is independent of the powers of elimination. I am glad to see that this view is confirmed by Dr. Semon's case, in which it is noted that the urine was normal.

These cases are so rare that any investigation into the nature of the "idiosyncrasy" is impossible. Nor has any explanation been offered as to why the worst of the trouble is usually in a somewhat circumscribed area around the eyes. In the paper written in 1906 and referred to above, I called attention, on clinical grounds, to the possibility of light rays playing a part in developing and localising these rashes in exposed parts. At that time very little attention had been given to the whole question of the action of light on the skin. It is interesting to note that during the last few years with the development of our knowledge of X rays, violet rays, &c., increasing attention is being given to this important question, and the effects which light in various forms can produce, both locally and generally, when acting upon the skin are now definitely recognised.

In conclusion, there are two facts which are worth remembering in connexion with eruptions due to the halogens. They may follow very small doses of the drug administered over a very short period and they continue to increase in extent for a considerable time—in the case of bromides sometimes for several weeks—after the drug has been entirely omitted. For these reasons it is often difficult to persuade the doctor who has administered the drug on the one hand, or the patient and his friends on the other, that it is a case of cause and effect.

[1] Arthur J. Hall: Some Points in Connexion with the more Severe Skin Eruptions produced by the Bromides and Iodides, Edin. Med. Jour., 1906, p. 213.

PRESENTATION TO DR. G. E. SCHOLEFIELD.—Dr. George Edward Scholefield, M.B.E., Ormskirk, medical officer of the West Lancashire Rural Council, was on Oct. 22nd presented with a silver rose bowl from the members of the council on the occasion of his retirement, after 28 years' service with the council. He was also presented with a silver epergne from the officials and staff of the Aughton Isolation Hospital, of which he had been medical officer since its opening 25 years ago.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DISEASES OF CHILDREN.

THE provincial meeting of this Section, postponed from June, was held at the Children's Hospital, Birmingham, on Oct. 30th, Mr. PHILIP TURNER, the President, being in the chair.

EXHIBITION OF CASES.

Dr. L. G. PARSONS showed a series of cases with radiograms illustrating

Cœliac and Renal Rickets.

The cases of cœliac rickets showed the development of this condition and its cure by limitation of fat in the dietary, the application of ultra-violet light, and the giving of irradiated cholesterol. He pointed out that in a young child the subject of cœliac disease the bones were fragile and atrophic in appearance, the cortex thin, and there was a general osteoporosis, but the epiphyseal line was quite sharp. Later on, about the age of 7 to 10 years, when growth was more rapid and the child more active, in addition to this general atrophic appearance there were obvious rachitic changes at the epiphyseal line and fractures were liable to occur. In the severest type of the disease there was a marked osteoporosis and extreme degree of rickets at the metaphysis with many fractures. The cases also showed that healing of the severest type would occur with the treatment outlined.

The cases of renal rickets were divided into three groups:—

(*a*) The *atrophic* group, in which the picture resembled that seen in cœliac disease—e.g., an osteoporotic and atrophic bone, with a thin cortex, and rickets at the epiphyseal line. This type, if the child survived to the age of 16 or 17 years, was frequently found to heal, and the healing was probably due to the fact that the child had reached the end of the growing period.

(*b*) The *florid* type, which showed a picture similar to that seen in ordinary rickets, and which in the case exhibited showed complete healing.

(*c*) The *woolly* type. In this type the metaphysis showed a curiously woolly, eroded, or stippled appearance, quite unlike that of ordinary rickets. The bone itself also showed a general osteoporosis and the deformities present were largely due to bending of the bone.

Dr. Parsons said that two apparently contradictory results had emerged from a study of these cases—namely, that in the florid and atrophic types cure might occur, but in the woolly type the use of ultra-violet rays made the condition worse. In all types of renal rickets the blood phosphorus was high. The calcium varied from 7·5 mg. to 11 mg. per 100 c.cm.; compared with the phosphorus it was, therefore, always relatively low, although the actual figure might be normal or even above normal. In the atrophic type cure at the age of 16 or 17 years was probably due to the period of growth being over. The probable mechanism of cure in the florid case shown was as follows. When the child came under observation first it was in an attack of uræmia, and as a result the phosphorus reached a very high figure. As the child improved the kidney was able to excrete phosphorus better and the calcium thereby became relatively higher and eventually, when cure had occurred, the calcium and phosphorus were almost in the same ratio as in the normal child. The picture presented by the woolly type was exactly that seen in the low calcium rickets produced experimentally in rats, and the histological picture, although not identical with that usually seen, undoubtedly indicated rickets. The woolly type was the most severe type of the condition and the reason why ultra-violet rays were contra-indicated in treatment, particularly of this type, was that the effect of ultra-violet irradiation was to increase the already high blood phosphorus, thereby making the already relatively low calcium lower still.

Dr. L. BALL showed a case of

Myelitis with Optic Neuritis.

The patient was a boy, who was admitted to hospital in June, 1923, being then 4 years of age. A febrile illness had commenced on May 16th of that year, accompanied by severe pains in the back and legs. This was followed by paralysis of the lower extremities, which developed gradually during a month from the onset of the illness, by which time complete flaccid paralysis of the lower extremities was present with anæsthesia and retention of urine. About six weeks after the onset bilateral optic neuritis developed, rapidly producing total blindness. The flaccid paralysis of the legs gradually passed into a spastic paralysis with contracture. The anæsthesia and the bladder paralysis recovered. The optic neuritis subsided into a post-neuritic atrophy, and to-day the discs showed atrophy of the so-called primary type. There was total blindness.

Dr. Ball also showed two cases of

Post-Encephalitic Respiratory Disturbances.

In the first case encephalitis developed during an attack of scarlet fever in 1924. In July, 1925, the child showed very marked attacks of respiratory disturbance, in which she went black in the face. Since then the attacks had slowly but steadily decreased in severity, duration, and frequency. She now had a definite Parkinsonian gait and attitude, but only a very occasional respiratory attack.

The second case was that of a female child who three years ago had an illness which commenced as an influenza cold, after which she became very restless, "like St. Vitus' dance," and was continuously picking things and chattering. This phase lasted three days, after which she became very drowsy and slept practically continuously for a fortnight. During this time a squint was noticed. She then became restless again, particularly during the night. The restlessness was now less marked, but for the last nine months she had panted. Occasionally she had turns of going black in the face, after which she slept. She was sleepless at night and had dribbled ever since the onset of the illness.

Dr. K. D. WILKINSON showed a case of a child, now aged 17, with

Congenital Heart-block.

She was first seen five years ago, when she exhibited a slow pulse, with no history of a previous illness. The heart was enlarged and there was a systolic murmur at the apex. The Wassermann reaction was negative. He had taken a number of electrocardiograph tracings which showed a complete heart-block. The pulse was usually about 32; to-day it was about 44; probably this was due to the fact that in these congenital cases excitement and exertion had some effect in increasing the ventricular rate. He believed the prognosis to be good.

Another case shown by Dr. Wilkinson was one of chronic nephritis, the particular interest of which was the recovery from a severe and protracted uræmia.

This girl had scarlet fever when 3 years old, and was first admitted to hospital in 1924 with heavy albuminuria and casts, but a normal blood-urea. Twelve months later she was readmitted with vomiting and oliguria and a blood-urea of 140 mg. per 100 c.cm. In September, 1926, she developed uræmia. The blood-urea was then 278 mg. per 100 c.cm. She remained in a uræmic state for over a fortnight, with a blood-urea consistently over 200 mg. per 100 c.cm., although the urinary output increased. Thereafter she made a slow recovery, interrupted only by a few minor remissions, until at the present time the blood-urea was only 53 per 100 c.cm., the blood pressure was normal, and the urinary output averaged 35 to 40 oz. in the 24 hours.

Dr. Wilkinson also demonstrated a case of Congenital Heart in a Child aged 9 years.

The child had been blue from birth, was breathless on exertion, had suffered from frequent attacks of bronchitis, and occasionally from epistaxis and hæmoptysis. There was slight cardiac enlargement to the left, but none to the right, and a systolic murmur at all areas. Extreme clubbing of the fingers and toes was present and the red cell count was over 9 millions.

Dr. Wilkinson said that these should be regarded as cases of a disease not so much of the heart as of the circulation. The prognosis depended on three things—clubbing of the fingers, cyanosis, and polycythæmia.

Mr. SEYMOUR BARLING showed a case of

Œsophageal Spasm

in a child aged 4 years.

She had had persistent daily vomiting, without nausea, for years. After giving her a barium meal the X ray

examination showed an œsophageal spasm 2 in. above the diaphragm, and the question arose as to what was the nature of the condition. The barium remained in the œsophagus two to three hours, and some was persistently present for ten days. During her stay in hospital she put on a little weight, but still continued to vomit, and she could only take semi-solids. Examination by the œsophagoscope showed that there was no ulceration of the œsophagus, but that the condition was one of spasm. A bougie passed easily, but the spasm nevertheless continued.

Mr. Barling thought there seemed to be some similarity in this condition to cardiospasm in adults. Although cardiospasm was rarely seen in children, he wondered if this case was not really an early stage of that condition, and if the œsophagus would become dilated as the child grew. At the present time he was trying treatment with Souttar's tube and would welcome any suggestions as to treatment by other methods.

D. J. G. EMANUEL showed the case of a child suffering from

Polycystic Disease of the Peritoneal Cavity

of unknown origin.

The patient was a girl aged 9, who was normal up to the age of 1 year, when her abdomen began to swell, and at 3 years of age she was admitted to hospital with an abdomen of 27 inches in circumference and with a diagnosis of ascites. The abdomen was tapped and 3½ pints of dark-coloured fluid was withdrawn. The child left the hospital with an abdominal girth of 25 in. From this time onwards the abdomen continued to increase in size until the girth reached 38½ in., but her general health was unimpaired. In July, 1926, the abdomen was opened in the middle line and a large cyst exposed. This cyst contained about six pints of olive-green fluid, with many cholesterin crystals in suspension. Similar cysts, varying in size from that of a large orange to cysts containing several pints of fluid were found to extend throughout the peritoneal cavity, from the under-surface of the diaphragm on both sides down into the pelvis. Many cysts were incised, but removal was not found to be possible.

No indication as to the origin of the cysts was obtained, said Dr. Emanuel, but the structure was not that of hydatid cysts. He thought, however, that it might be a multilocular ovarian cyst.

Dr. P. C. CLOAKE showed a case of

Hemiplegia Occurring During Diphtheria.

The patient was a girl aged 12, who was admitted to an isolation hospital in June, 1925, with diphtheria. After 14 days in hospital she had apparently recovered from the illness, when she was seized with a right-sided hemiplegia and asphasia, and became very ill. Two weeks later she developed severe attacks of vomiting and, later still, difficulty in swallowing, probably due to pharyngeal and palatal palsy. There was some recovery of aphasia and of the right leg, but as was usual in these cases the right hand was still very spastic.

In the opinion of Dr. Cloake the condition was not due to an encephalitis, but to embolic impact of the brain. The source of the embolus was probably a clot in the left ventricle.

Two Interesting Cases.

Dr. J. M. SMELLIE showed two cases.

The first was a girl aged 12, who was admitted to hospital in 1919 with enlarged liver, a large heart, and a history of œdema. She was admitted to hospital again recently. On examination the child showed marked stunting of growth, and in the abdomen were three or four large irregular masses, but no symptoms of any kind were complained of. There was no evidence of deficient fat absorption from the bowel, and kidney efficiency tests were normal. The blood showed a normal count, and radiological examination did not show any displacement or deformity of the stomach, or intestinal stasis. The Wassermann reaction was weakly positive.

Dr. Smellie thought the case was one of tuberculous peritonitis, but hydatid cysts had also been suggested as an explanation of the abdominal tumours.

The second case was that of a boy aged 12 years, who appeared normal at birth, but was very late in learning to walk owing to marked spasticity. For the last three years the patient had been unable to feed himself because of marked tremor of the arms. Several operations had been performed on the legs to enable him to stand and walk with the aid of splints. At the present time the boy showed marked general spasticity, was unable to walk or stand alone, and there were coarse tremors made worse by voluntary movement. Marked dysarthria and some incoördination of the movements of swallowing were present. The tendon reflexes were increased, there was primary optic atrophy, and no pupillary light reflex. The liver was not enlarged, and van den Bergh's test was normal. The Wassermann reaction was negative. The child was not mentally defective, but he was subject to spasmodic attacks of laughter.

Dr. Smellie said that he had only had this case under observation for a short time, and he wondered if the condition might not be lenticular degeneration. Many of the symptoms suggested that condition, but the child had a double optic atrophy, and Dr. Beatson Hird had examined the eye with a slit lamp and reported that there was no Kayser-Fleischer ring present.

Pathological and Biochemical Illustrations.

After the clinical cases had been discussed there was a pathological and biochemical demonstration. Specimens illustrating hepatic lesions in childhood were shown by Prof. HASWELL WILSON. Specimens showing results of caseation of mediastinal glands by Dr. SMELLIE. A specimen of actinomycosis of the liver by Dr. BALL, and Dr. W. J. HILLIER gave a demonstration of his methods for testing the fragility of the red blood corpuscles, and of estimating the coagulation-time of blood. In the biochemical laboratory Dr. E. M. HICKMANS showed methods of estimating the colloidal osmotic pressure of blood, the estimation of blood cholesterol, the manufacture of lactalbumin, and the method of irradiating cholesterol.

LONDON POST-GRADUATE HOSTEL.

AT the bi-weekly discussion on Oct. 28th Mr. F. N. DOUBLEDAY, the President, opened a symposium on the

Filled Tooth as a Source of Streptococcal Blood Infection.

Some people, he said, have scoffed at the idea that a dead tooth could have any direct relationship with general disease, while others, in the opposite camp, laboured under a wish to extract every tooth from the patient's mouth, whether dead or healthy. Dental surgeons saw many people who suffered from a mass infection, such as pyorrhœa, but that was not the particular subject chosen for discussion; it was the dead tooth as a source of general streptococcal infection. He asked that the debate be confined to the streptococcal variety of invasion. The discussion naturally fell under two main lines: First, the pathological part—i.e., the establishment of the fact that the infection was there; secondly, the paths through which the infection probably travelled to become manifest in remote parts of the body. Perhaps opinions would be expressed on the recent work done in America by Weston Price, and the views held by Rosenow on the election shown by certain organisms for particular parts of the body. Dr. Weston Price had been doing work on the granulomata which occurred at the apices of teeth. Those who cut such granulomata open were aware that they were frequently found to be solid masses of cells, and many knew that they contained large numbers of leucocytes, which helped to give them their solid character. Weston Price's suggestion was that many of these solid granulomata at the apices showed in the skiagram as rarefied areas, and he believed that they were not so much evidences of infection as manifestations of the reaction of the body to the tooth condition, that they were, really, evidences of defence. Mr. Doubleday proceeded to mention three illustrative cases of proved streptococcal infection from his own practice.

The first was that of a married woman, aged 35, who came for treatment seven years ago and showed a tendency towards synovitis; she had teno-synovitis in the tendons of the arms and wrists. There were three dead teeth and a good deal of gum infection. He tried to persuade her to part with her dead teeth, but she steadily refused to do so, and went away for six months. At the end of that time she returned, suffering from acute teno-synovitis, and again he tried to get her to have the dead teeth extracted and the

others too, as streptococci had been grown from her gum margin. Her own local dentist scoffed at any measure beyond extraction of the three dead teeth. After that was done the teno-synovitis cleared up, though there were still streptococci at the gum margins.

The second patient, also a woman, was aged 65, and she had myositis, and arthritis of the cervical vertebræ, leading to much stiffness and limitation of movement, especially on turning her head. She also had some dead teeth, from which streptococci were cultivated. After those teeth had been removed she got some recovery of the movements which had been so limited, but was disappointed because she did not get complete freedom following the extractions.

The third case was that of an ex-officer, aged 45, who two years ago was suffering from sciatica of a very acute form. He had two dead teeth, one of which, after it had been extracted, yielded from its apex *Streptococcus longus* almost in pure culture. The socket did not heal very well after the removal, and whenever there was a collection of leucocytes, with some pus, in the socket he suffered an exacerbation of the sciatica, and it was necessary in order to relieve the acute pain to open up and drain the socket. There was thus proved to be a close association between the sciatica pain and the condition of the tooth socket; even light treatment and the use of vaccines had failed to relieve the pain in the absence of the local measures referred to.

The Dental Aspect.

Mr. E. SPRAWSON spoke of the various causes of teeth going dead after filling. He said that, ordinarily, the death of tooth pulp was a process attended by some pain, and occasionally by considerable pain; but, under certain circumstances, neither pain nor any other symptoms accompanied it. One cause of the death of tooth pulp was that certain filling material used was harmful to the pulp; some of the synthetic compounds might cause such death by their toxic products passing down the permeable tooth into the dentine. Before the dental surgeon put in any such filling he should line the cavity with an impermeable cement; then such toxic effect could not ensue. Certain drugs were occasionally used by dental surgeons for the purpose of lessening the sensitiveness of the dentine when they were preparing cavities. The chief of these were arsenic and paraform, and, more rarely, ethyl chloride. These might kill the pulp without pain being felt, and micro-organisms might have been left in the cavity at its preparation and might subsequently cause a more general infection. An important point was that though the filling used in a tooth might be sound and good, yet on some aspect of the tooth not easily seen, where it was adjacent to another tooth, a new site of caries, unsuspected, might have occurred, and result in infection and the death of the tooth. This death usually caused pain, but it must be remembered that occasionally it did not. Sometimes, notably in children, when excavating the cavity the surgeon might expose one or more cornua of the pulp, perhaps with the last stroke of the burr, and an attempt was often made to preserve tooth pulps by sterilising the cavity and covering over the exposed cornu with some non-irritant, slightly antiseptic dressing. In adults this frequently was not successful. Senile teeth (by which he did not mean the teeth of old people) were often found to have dead pulp, and often there was present some recession of the gum. Therefore, at the outset, such a tooth should not be saved; some infection might be left in the depths of the cavity at the time of its preparation for filling. The tooth pulp might be killed in operations on the maxillary antrum, especially when an opening was made through the canine fossa, with the consequent cutting off of the nerve and blood-supply. Also, trauma might cause the death of the pulp, whether or not filling had been done. When the dental surgeon had to deal with sensitive dentine he sometimes injected a local anæsthetic into the gum in the proximity so as to lessen the sensitiveness of the dentine, and usually some adrenalin was used at the same time, and thereby the pulp was rendered not only anæsthetic but analgesic. As soon as the effect of the anæsthetic had worn off, the patient could be depended upon to let the dentist know about the pain.

The Radiological Aspect.

Dr. A. C. JORDAN demonstrated on the screen a series of radiographs of the teeth and jaws, both healthy and in various stages of disease. He said that X ray films were essential to the diagnosis of infected roots, as neither doctor nor dentist could be sure of the diagnosis without them. In all civilised communities teeth decayed early, chiefly because of the unnatural condition of the foods eaten. If people were to return to eating fruits, nuts, grains, and greens, with fresh farm produce, the teeth as a whole would be immensely better in a single generation, especially if careful attention were given in the matter to the expectant mother. During the months of nursing and a year beyond, infants should be encouraged to work their jaw muscles by biting on bone and other hard substances, as this tended to allow more room for the teeth when they came, and to avoid overcrowding. The sucking of "dummies" should certainly be discouraged, as this contracted the jaws.

The Bacteriological Aspect.

Dr. R. G. CANTI said that normally the mouth was crowded with organisms of many kinds; a cubic centimetre of saliva contained 100 million cocci. Therefore it was easy to contaminate cultures when material was taken from the mouth for investigation. There were two important sites of sepsis: the pyorrhœa pocket, and the apex of the tooth, the latter being the more important. The mucous membrane of the mouth was continuous with the periodontal membrane, and when that membrane was the seat of disease any organism inhabiting the mouth could get down there and destroy it, forming a pocket which was the nidus of infection. Some of the mouth organisms lived there as saprophytes, but others produced toxins, which were very liable to be swallowed and do harm in the intestinal tract. Usually streptococci were not predominant among the mouth organisms; more frequent denizens were Gram-negative organisms, such as coliform or highly motile vibrios. Spirochætes also were present in large numbers, as well as amœbæ. He had never examined pus from a pyorrhœa patient without finding the latter. Sometimes an organism from outside was found in the pus of a pyorrhœa case, such an one being actinomyces. There were many difficulties connected with the bacteriological examination of the contents of an apical abscess. The tooth could be extracted and an attempt made to grow organisms from the root. But there were fallacies to beware of. As the tooth was being drawn from its socket the tendency to form a vacuum resulted in movable material, such as saliva, being drawn into the cavity and vitiating the examination. He deprecated the practice of putting a tooth into a bottle with its matter round it, for the result of 12 hours of shaking up in the post was that all the other material had got into the apex, and a dependable opinion could not be given. Much help could be afforded by sterilising the cavity; iodine should not be used for this, as it was likely to kill bacteria. Alcohol, or alcohol followed by ether, was preferable. The form of streptococcus usually found at the apex was *S. salivarius*, that at the root of an acute abscess a hæmolytic streptococcus.

Discussion.

Mr. A. P. BERTWISTLE gave a résumé of a case of severe constitutional disturbances which cleared up on removal of a tooth and drainage of an abscess.

It was that of a man, aged 29, who had an attack of follicular tonsillitis, and one evening, when it was clearing up, he had pains in the left ankle. On the following day the pain had ceased, but the ankle was swollen, and pitted on pressure being applied. He had "tightening" pains in the lower part of the right chest, and much constitutional disturbance, the temperature being 101·5° F. In six weeks the chest pains had disappeared, but the œdema increased and extended up the leg. A month later the tonsils were removed, and as the appendix became inflamed that was removed four months later. Four years after these occurrences he had erysipelatoid attacks, and in half an hour he had a feeling of malaise and the temperature was 101°, and for 24 hours he had copious vomiting. The inguinal

glands became painful, and the saphenous vein hot and painful, probably part of a lymphatic trouble. Walking was impossible owing to fixation of thigh and knee, but in a month this disability had disappeared. Three further attacks occurred, but the third was much less severe. In a still further attack the leg was tender and all movements of toes and ankle were very painful. Mr. McAdam Eccles saw the case and suggested that a dental focus was the source of the trouble, recommending that the teeth should be X rayed. An abscess at the root of the second molar tooth was subsequently found, and on an apparently perfect filling being removed, pus welled up. A strong antiseptic dressing was applied to the tooth, and following that the patient's condition was much improved. As there had been no pain in the tooth, it was a surprise when an abscess was discovered.

Mr. W. MCADAM ECCLES said surgeons came across many cases of the kind in which the source of infection was very difficult to find. The late Mr. Lockwood was one of the first to draw attention, in any London medical school, to the fact that the mouth contained a vast variety of bacteria, and even animal parasites, and that these might be the cause of many of the conditions which were found. In the definite condition which might be called pseudo-elephantiasis, in which the lower extremities were very much enlarged, particularly below the knee, with a peculiar sulcus about the ankle-joint, giving rise to what might be termed "tortoise-foot," there was often a definite source of infection in one or more teeth, especially teeth which had been stopped or crowned. And, in most of the instances, the removal of those infected teeth had produced very considerable improvement in what might be termed the secondary characters of such pseudo-elephantiasis—namely, the continued breaking and cracking of the hard, coarse skin.

Dr. P. H. MANSON-BAHR spoke on the subject of elephantiasis, the tropical disease, which might or might not be associated with chronic sepsis. He did some research work on this disease 15 years ago. It was a widespread disease, especially in some of the Pacific Islands; sometimes 20 per cent. of the inhabitants of an island were afflicted with the disorder. The filaria parasite was its first cause in natives, but it was not held that the filaria alone was responsible for the disease, as people could be infected with many filariæ for many years without having signs of lymphatic obstruction. In the production of the disease the filaria worm and the streptococcus worked hand-in-hand. In this country one saw instances of elephantiasis nostras, usually associated with recurrent attacks of lymphangitis, and there was always present an ascertainable cause of sepsis. In this the filaria worm was not operative, as it was not found in this country. In some cases of elephantiasis nostras one could find not only dental sepsis, but also some raw skin lesion or surface of the body from which toxins could be absorbed. Some of the cases started insidiously, without any exacerbation, that then it was very difficult to know what the cause of the infection was. An allied condition was congenital lymphœdema, of which he would like to know the cause. It was supposed to be a progressive stenosis of the main lymphatic trunks, and he did not think it could be attributed to any focal infection.

MANCHESTER MEDICAL SOCIETY.

A MEETING of this Society was held on Oct. 6th, when Dr. ALFRED A. MUMFORD delivered the presidential address on

Physique, Stamina, and Efficiency of School-boys.

He said that though we had vastly improved the medical assessment of health during the last 90 years, yet the methods of measuring physique advised by the medical witnesses during the Factory Commissions—the measuring rod, the scales, the tape, and the pulmometer of Thackrah, and the date of eruption of the permanent teeth introduced by Sir E. Saunders—still constituted the basis of our judgment of the physique of the school-boy. In all our calculations it was necessary to begin with the average boy and from him measure accelerated or retarded physique, the effect of instruction in the gymnasium, swimming-bath, games, and class-rooms. In the investigations described inquiries had been extended to the comparison of school physique with subsequent career at the local university. The Manchester Grammar School measurements had been taken under exactly the same conditions of clothing, &c., from 1881 to the present time. They showed that the average boy was steadily improving in height, weight, and chest girth, though the measurement of vital capacity and of endurance (by Flack's test) had been of too recent adoption for us to be able to tell whether there was any improvement in respiratory power. Measurements of boys admitted to the Classical VI. and Science VI. between 1890 and 1910, and of boys chosen for the gymnasium eights during the same period showed that, while there is little to distinguish them in height or weight from the average boy, yet in both cases there is a significant difference between them and the normal boy as regards chest girth. In order to find a common basis for comparing mental and physical progress, units of physical measurements must be taken on time increments—that is, in the progress made in six or 12 months. Tables of time-increments in height, weight, chest girth, vital capacity, and endurance based upon the records of the school had been drawn up and were used for constant reference. By means of these the relative development in the different categories could be compared. Observations were also made on the specific gravity of boys in the school swimming-bath during the summers of 1923–24. It was found that the largest factor in the variations was due to the degree of inflation and the size of the chest. When the means of the observations with inflated chest at each year of life were taken, it was found that they were always below that of water, while the means of the observations with deflated chests were always above that of water. The question of buoyancy as a standard of health was, therefore, considered. As it was impossible to measure the buoyancy of all the boys in the swimming-bath, an attempt was made to utilise the measurements taken in the gymnasium for finding the relation between weight and volume—that is, the specific gravity. The formula

$$\frac{\text{Weight in grammes} \times K}{\text{Height in centimetres} \times (\text{chest girth in centimetres})^2}$$

was adopted.

A lengthy series of inquiries showed that for the average boy "K" was in the immediate neighbourhood of 19·5. In the subsequent 2300 calculations of series of measurements, the "K" was left out and the formula $\frac{W}{H C^2}$ was used as a crude buoyancy index of health. If special cases, where the chest girth differs markedly from the mean circumference of the body—e.g., the cases of boys of exceptional shoulder development and the cases of boys of very full stomach are left out—the crude buoyancy index was a very useful method of testing the physical fitness of different boys. The means of the crude buoyancy index of the 2300 cases at each age were taken as the normal, and it was found that the high level scholar was of markedly greater buoyancy and the gymnasium champion of still greater buoyancy than the average boy of the school. A further series of measurements of shoulder girth was taken and this girth was calculated as a percentage of the trunk height in order to obtain an index of shoulder development.

A study of the development of the shoulder in relation to physique was of very great importance, since in Circular 1363 the Board of Education virtually scrapped the elastic horizontal ladder, the row of rings, parallel bars, and horizontal bar which had played so large a part in developing the physique and courage of English public school-boys, in favour of Swedish apparatus. Mathematical analysis of measurements taken at the Manchester Grammar School

showed a high correlation between the development of the shoulder as secured by English methods and the high range of breathing. Whether Swedish methods would prove as active and beneficial to English public school-boys remained to be proved.

Graphs illustrating the way in which the development of champion gymnasts, swimmers, winners in long-distance runs, sprinters, holders of school colours in lacrosse, football and cricket, and also graphs showing differences in physique between boys of accelerated and boys of retarded scholarship had been constructed. Finally, a group had been taken of 140 students who during the last ten years had been educated at the Manchester Grammar School where they had been submitted to periodic measurements and had subsequently passed on to the Manchester University. The group was divided into two sections: (1) about 45 in number who had passed through a five years' course at the medical school and had not failed at any examination, and (2) those who had suffered one or more failure. It was found that, though the mean height after 16 years of age in the former group had been slightly less than the mean of the latter group, yet when the relative gradings in height, weight, and chest girths were compared, the boys who had passed through the university without any failures had shown an ampler range of breathing or a larger chest girth in relation to their height than the group who had suffered failure.

INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY.

AMSTERDAM CONFERENCE ON CHRONIC RHEUMATISM.

By invitation of the Dutch Committee of the Society a conference on rheumatism was held at Amsterdam on Oct. 23rd, representatives of the Ministry of Health, the British Red Cross Society, the Society's British Committee on Rheumatism, the British Spas, and the Spa Federation being present. The morning was spent at the Institute for Physical Treatment (Keizersgracht 489) where the medical director, Dr. J. VAN BREEMEN, secretary of the Dutch Committee, demonstrated the methods of physical treatment as applied in rheumatic and circulatory disorders to insured patients of whom as many as 300 may be treated in one day. The conference took place at the Colonial Institute, about 900 persons being present, Dr. TREUB, Chairman of the Dutch Committee, presiding.

Prof. J. R. SLOTEMAKER DE BRUINE (Minister of Labour), who officially welcomed the guests, expressed a hope that Holland would prepare statistics of the incidence of rheumatism similar to those published by the British Ministry of Health. The Dutch Government, he said, had every desire to support this movement.

Dr. TREUB said that the neglect of the study of common rheumatic disorders and the absence of clear data was bad alike for the patient and for the community. In Holland there were large numbers of workers suffering from rheumatic invalidity. Dr. van Breemen was their medical consultant, and they hoped to establish a special hospital for rheumatism in Amsterdam at an early date. A national effort was needed to combat these diseases.

Dr. FORTESCUE FOX (London) recalled the annual summer migrations of Highland fisher folk to the spa and the obvious relief thus obtained by people who lived in a cold and damp country. He was convinced that this age-long popular usage was justified, for modern medical observation had only confirmed the universal experience of the value of baths and internal treatment by waters in chronic rheumatic affections. But these natural physical remedies, if they were to be used with any advantage in our present civilised life, must be given by practitioners of special training and experience. Recent reports from northern European countries had brought out the dependence of the rheumatic diseases upon physical influences. The Council of the International Society, which had more than 300 members, believed that investigation ought to go hand in hand with curative measures, as had been done in the disablement clinics established during the war. Committees set up by the Society in northern European countries had recommended that treatment for rheumatic industrial workers should be improved both in quantity and quality, and concurrent investigation and treatment, under skilled medical direction, was the watchword of their movement. The problem in England and Holland was similar, because natural baths did not exist in Holland and were insufficient in England to deal with the large numbers involved. In England it was proposed to develop the facilities at the spas, and to set up clinics in the towns for investigation and treatment. During the last half century physical treatment had developed more upon the continent than in England; the British delegates welcomed the opportunity of studying methods at the Amsterdam clinic, and were also visiting the Hospital for Rheumatism at Aachen, directed by Dr. Krebs. They were dealing with a group of disabling diseases which inflicted serious economic loss upon all the northern communities, and it was essential that they should join forces in a common effort.

Dr. ALISON GLOVER (British Ministry of Health) said that the importance of rheumatic disease was everywhere admitted, and had been clearly shown 16 years ago in the admirable statistics of the Leipzig Federation of Sickness Funds and more recently in Sweden by Dr. Kahlmeter. The report of the British Ministry of Health showed that nearly one-sixth of the total sick pay for industrial invalidity was paid on account of these so-called rheumatic diseases, and this great incidence might be accepted as proved, at least for northern Europe. Most people were agreed that, at all events in England, only a minority of these hosts of patients were able to secure those forms of treatment which were highly beneficial if not essential; only a minority were subjected to that thorough search for the focus of infection which was so often required, and only a very small minority, usually of the better class, received appropriate physical treatment. Sir George Newman, the Chief Medical Officer of the Ministry, had repeatedly urged the necessity for provision of further treatment, and had pointed out that even with present knowledge an immense amount could be done, and ought to be done, for patients with such diseases as rheumatoid arthritis. Institutions for such treatment, he had said, should not be regarded as a Utopian ideal, and might, indeed, represent an economy, in view of the large sums which were now being spent or lost yearly, whilst allowing these diseases to progress unchecked by the kind of treatment they required—treatment which often could not be provided by the practitioner alone, nor, indeed, by the ordinary hospital or infirmary.

More recently, continued Dr. Glover, the same authority had foreshadowed a scheme which would include three different types of institution, the first being the *Physical Treatment Clinic*. Such clinics would serve a threefold purpose; first, they would be clearing houses, directing patients to the form and place of treatment suited to their need; some would be sent for spa treatment, some for intensive study at an arthritis unit, whilst others would be greatly benefited by treatment at the clinic itself. Secondly, therefore, these clinics would be out-patient institutions, to supply those forms of physical treatment often necessary for the re-education of muscles and joints. Thirdly, they should be organised in close coöperation with the arthritis unit and with the spa hospital, and provide continued supervision, observation, and after-care, following institutional treatment. Such clinics would be also of great service in diseases and conditions other than rheumatic, such as fractures, deformities, and diseases of the nervous system. The second type of institution foreshadowed was the *Arthritis Unit*, which should be in closest coöperation with a large teaching school of medicine or university, enabling it to fulfil

the purposes of research and observation as well as teaching. It would also act as a place of preliminary treatment or preparation for spa treatment. Patients would be admitted at the earliest possible stage of their disease for thorough examination by modern methods. The focus of infection would, if possible, be found and removed; bacteriological and biochemical investigations would be completed, and a diagnosis made before the patient was passed on to another institution; orthopædic surgery would, if necessary, be used. Such a unit would furnish opportunity for team-work in both research and treatment. The third type of institution was the *Spa Hospital*, organised in closest coöperation both with the arthritis unit and with the physical treatment centre. The hospitals at Bath, Buxton, and Harrogate suffered at present from the fact that many of their 650 beds were occupied by advanced cases. A wise selection of cases would be invaluable to the efficiency of the spa hospital. The patients having been thoroughly examined and the preliminary treatment being completed at the arthritis unit, spa treatment would be much more beneficial and the duties of the spa physician simplified.

Dr. KREBS described the treatment of insured rheumatic patients at the Landesbad at Aachen,

Dr. VAN BREEMEN protested against the common opinion, even in medical circles, that the control of rheumatic diseases was impossible. Many facts had been published and many results put on record by well-known medical men, proving that successful treatment was possible, even with the present poor organisation. He believed that when the family doctor had received at the university medical education in the diagnosis and treatment of rheumatism the results would be much better. But more was required than the family doctor in contending against these diseases. A special hospital for rheumatism was needed with a laboratory for scientific study. It had been demonstrated, especially in America during the last 25 years, that hospitals for particular diseases were of great advantage to the patients and to science. Holland might be made an important centre for the study of the rheumatic diseases, but both energy and funds were needed for this purpose. Moreover, he said, every disease with a social significance must be fought at the beginning and not at the end.

On the following day the conference was resumed at Aachen, where Dr. Krebs and his assistants demonstrated the organisation of the Landesbad, erected by the Friendly Societies of the Rhine Provinces in 1912, for the use of their members suffering from rheumatic diseases. The cases, usually in an early stage of disease, are selected by a commission at Düsseldorf. There are 360 beds and a complete system of physical treatment.

Reports and Analytical Records.

PREPARED HONEY (EMPIRE PRODUCE).

(GARVIN BROS., LTD., 26, FINSBURY-SQUARE, E.C. 2.)

THIS prepared honey is stated to be a blend of honeys of the Empire, "to which has been added the necessary proportion of invert sugar (the natural sugar of ordinary honey) to secure a uniformly high quality and mellow flavour." It is, therefore, obvious that this "prepared honey" is an admixture of ordinary honey and invert sugar. When analysed the following results were obtained:—

Invert sugar	71·05 per cent.
Cane sugar	3·10 ,,
Water	20·30 ,,
Ash	0·14 ,,
Unestimated matter (wax, proteins, &c.)	5·41 ,,

This composition closely approximates that of ordinary genuine honey, but is rather sweeter to the palate. It may be regarded as a wholesome preparation, and the food value is comparable with that of pure honey.

Reviews and Notices of Books.

OBSTETRICS.

By JOHN S. FAIRBAIRN, B.Ch. Oxf., F.R.C.P. Lond., F.R.C.S. Eng., Obstetric Physician to St. Thomas's Hospital. London: Humphrey Milford, Oxford University Press. 1926. Pp. 221. 5*s*.

THE common purpose of the Oxford Medical Handbooks, to which series this volume belongs, is to deal shortly with the fundamental principles which underlie their subjects, and to illustrate these by their applications in general practice. The handbooks are not intended to be short text-books, but to give a general survey, on broad lines, of various branches of medical science and of their inter-relations with each other. Dr. Fairbairn has shown that a survey of so complex a subject as obstetrics can be compressed into some 200 small pages by a master-hand without any important aspect being ignored. No attempt is made to mention the rarer abnormalities and difficulties of obstetrics, so that plenty of space remains to deal thoroughly with essentials. The result is most pleasing. Instead of a dull cram-book we have here a delightful expression of the author's broad outlook on obstetrics in relation to public health and private life. It is unnecessary to add that the teaching is up to date; for example, the latest views of Treacher on the imbedding of the ovum are included. The chapter on the Place of Obstetrics in Medicine and the Public Health Service is admirable, and the whole book is pervaded by that common-sense view of the subject which so many text-books appear to lack.

In the preface the author modestly suggests that the book should be useful as a primer for students; we would add that all who take an active part in obstetrics could study it with advantage.

PUERPERAL SEPTICÆMIA.

By GEORGE GEDDES, M.D., C.M. Aberd. Bristol: John Wright and Sons, Ltd. 1926. Pp. 200. 12*s*. 6*d*.

IN June, 1924, the Royal Society of Medicine awarded the Nichols Prize on the best contribution towards the Discovery of the Causes and Prevention of Death in Childbirth from Septicæmia to Dr. George Geddes, of Heywood, who has now published the subject of his thesis in book form. The greater part of the monograph is devoted to the causes and prevention of puerperal septicæmia, symptoms and treatment being dealt with more briefly. The data obtained for this essay are based on the author's 25 years' experience of general practice in one of the industrial areas of Lancashire. Previously he had practised in Scotland, where in his experience the disease was almost non-existent, and it was this marked contrast of the two practices which led to the present investigation.

Dr. Geddes admits many factors as responsible for puerperal fever, and sets out to prove "that industrial accidents determine the puerperal fever rate in every district, because such accidents generally produce septic wounds. He assumes for his purpose that "accident" and "septic wound" are synonymous terms, forming a unit when considered in their relationship to puerperal fever, and holds that septic wounds resulting from accidents become sources of infection. Women in labour are infected, he believes, through the agency of medical practitioners generally, who cannot escape contamination in the daily routine of industrial practice. The author bases his thesis on an extensive mass of carefully prepared statistical tables which are difficult to assess accurately. The statistical portion of the paper was submitted to Mr. Caradoc Jones, lecturer of social statistics, Liverpool University, who reported that "the results indicate a small positive correlation between the puerperal fever rate and the accident rate, and

between the puerperal fever rate and the erysipelas rate, but, in view of the size of the probable errors, it is not certain that the results obtained are significant." Since the proof of the "industrial accident theory" must largely depend on the statistical findings, Mr. Jones's verdict is not very favourable to its adoption. There is no doubt that widespread sepsis must increase the liability to infection during parturition in those cases where interference is necessary. The author remarks "that the most fertile source of streptococci in puerperal cases is the hands of those who conduct the labour"; the obvious remedy is to reduce this interference to a minimum and this can only be accomplished by efficient antenatal supervision. Unfortunately, Dr. Geddes barely recognises this important adjunct to the art of obstetrics, and in one place states "that antenatal supervision as advocated by Sir George Newman will not affect 75 per cent. of the victims of puerperal sepsis." With this view we cannot agree, and would point out further that his own recommendations are very similar to these official edicts which he rather scorns. In his opinion the one solution of the problem lies in preventing those most in contact with septic wounds—i.e., general medical practitioners—from attending puerperal women. As Dr. Geddes recognises the impractibility of this suggestion, his only alternative is that all labours should be conducted under strictly aseptic conditions—i.e., in lying-in institutions. Apparently no provision is to be made for any adequate antenatal supervision. He lays no stress on seeing the patients early, and in some instances his advice appears a little fortuitous—viz., "one might inquire as to the presence of vaginal discharges" or "if considered necessary the urine should be examined."

Without wishing to detract from a laborious and elaborate contribution to the literature of one of the most elusive diseases which have confronted the medical profession, we find that Dr. Geddes has not brought forward any fresh solutions of difficult problems, and that his thesis remains unproven. If, however, by an interesting investigation carried out under difficult conditions he has succeeded in drawing attention to the appalling maternal mortality in industrial areas, and in securing adequate lying-in accommodation, his work will not have been in vain.

SIR FELIX SEMON.

The Autobiography of Sir Felix Semon, K.C.V.O., M.D., F.R.C.P., Physician Extraordinary to H.M. King Edward VII. Edited by HENRY C. SEMON, M.A., M.D. Oxon., and THOMAS A. MCINTYRE. London: Jarrolds, Ltd. 1926. Pp. 349. 21*s.*

THIS is the interesting autobiography of an interesting man. Sir Felix Semon was not only a great laryngologist and one who raised the position of his specialty in this country to new heights, but he was also a skilled linguist and an accomplished musician, although, sad to say, he confesses that he never succeeded in taking to his heart "those old heroes Bach and Handel." He was a good shot, a keen fisherman, and capital company in all circles, so that his life was a full one, both in his public and private capacities, and its record will be welcome to many.

Sir Felix Semon was born in Danzig in 1849, but his family moved to Berlin in 1852. Here in 1856 he records how his father allowed him to sit up late and how he saw two sights which are among the most memorable recollections of his life—namely, Donati's comet, in 1856, and the great Alexander von Humboldt, who was sitting on a chair in the street looking at the comet through a telescope, and who died in 1859 in his ninetieth year. He received his early education at the Friedrich's Gymnasium in Berlin, which he left when aged 18, entering Heidelberg University in 1868 to study medicine, but a severe fracture of the leg sustained during his first long vacation compelled him to return home, and eventually he matriculated at Berlin. In 1870 his studies were interrupted by the Franco-German War, in which he served as a trooper in a Uhlan regiment, but the collapse of France was so speedy that he was able to return to his studies promptly, and he passed the final examinations in 1874. Then began a year of post-graduate study in Vienna, Paris, and finally London, where he arrived in 1875, and in 1876, after much family opposition, determined to settle as a laryngologist. Undoubtedly he had obtained, even in that stage of his career, an unusually good clinical insight, but he must have owed much to his personal qualities, for from start to finish he never looked back, and his long and arduous struggles to obtain recognition for laryngology as a special branch of surgery met with well-earned success.

Outside of his profession he lived in a delightful millieu of musicians, painters, actors, and authors, while he was recognised throughout by his colleagues as a representative man of science. He became President of the Laryngological Society of London, was elected physician for diseases of the throat at St. Thomas's Hospital, and was appointed Physician Extraordinary to King Edward VII., with whom he was on terms of personal friendship No wonder that his autobiography should be full of good stories in the course of a vivid account of a long life of varied activities. A long chapter is devoted to an account of the sad and somewhat sordid tragedy of the last illness and death of the Emperor Frederick, and will recall to senior readers the acrimonious quarrels that broke out in this country and in Germany around the professional behaviour and clinical performances of the closing scenes. Another most interesting chapter is the one dealing with the position of Semon himself and his compatriots in England during the Great War, when the esteem which Semon enjoyed in this country was well shown by the spontaneous resentment of his scientific colleagues at the action of the German laryngologists in removing his name from the *Internazionales Centralblatt für Laryngologie, Rhinologie, &c.*, of which he was the actual founder. This esteem had been shown publicly five years earlier, when in 1909 he retired from active practice. A banquet in his honour was then held and a testimonial subscribed, when the money was at his own request applied to the endowment of a lectureship at the University of London known as the Semon Lectureship for Laryngology. He died from angina on March 1st, 1921.

Dr. H. C. Semon has done his editing well.

BACTERIOLOGY.

A Manual of Bacteriology, Clinical and Applied. Eighth edition. By R. TANNER HEWLETT, M.D., F.R.C.P., D.P.H. Lond., Emeritus Professor of Bacteriology in the University of London; formerly Professor of Bacteriology and head of the Department of Public Health, King's College. London: J. and A. Churchill. 1926. Pp. 645. 18*s.*

THE fact that a book has been before the public for 28 years and has reached its eighth edition is more potent evidence of its success and popularity than any praise bestowed by a reviewer can be. In the life of a much-revised text-book a period comes when it might be well if the author could discard his old manuscripts and re-write the whole out of his mature experience and without reference to literature. Hewlett's Bacteriology now bears evidence of repeated additions; just as an old building sometimes becomes so hedged about by the subsequent improvements, alterations and additions required by changing times and new generations, that the main lines of the original structure are almost lost. In some ways the book "dates" in spite of its constant revisions, a type of Cambridge rocking microtome, for example, being figured whose manufacture ceased some 15 years ago. Prof. Hewlett has, however, been at great pains to keep up to date and has omitted no contribution to bacteriology of importance within the period covered by the book's existence. At the same time any personal gospel is rather submerged in

the effort to include in all-embracing fashion the results and views of a host of workers, and the student will have some difficulty in deciding between what is accepted teaching and what is much more speculative. This does not lessen its value as a reference for those whom experience has brought critical ability, and to them the book will prove extremely useful as one of the most comprehensive books on bacteriology in the English language.

THE HUMAN CEREBRO-SPINAL FLUID.

Vol. IV. of the publications of the Association for Research in Nervous and Mental Disease, New York. New York: Paul B. Hoeber, Inc. 1926. With 77 illustrations and 58 tables. Pp. 568. $10.

FROM knowledge of previous publications of the Association for Research in Nervous and Mental Disease, reviewed from time to time in the columns of THE LANCET, we expected much of this, their latest contribution, and are not disappointed. There have been a number of books in recent years which have dealt with various aspects of the study of the cerebro-spinal fluid in more or less comprehensive fashion; this volume contains perhaps the best survey of them all. The Editorial Committee claim for it the most up-to-date information, the embodiment of material hitherto difficult of access, and the best current interpretation of both the physiological and pathological sides of the subject. The clinical contributions are based on over 5000 recorded examinations of fluid obtained from every conceivable pathological state.

Authoritative presentments of a surprisingly large number of topics, ranging from the fluid's normal biological, chemical, and physical properties to the diagnostic replacement of the fluid by various agents, crowd the pages; a specially interesting section is concerned with reactions of the fluid in diseases outside the nervous system proper. As may be expected, differences of view and opinion in respect of controversial matters are acknowledged rather than harmonised; the incompleteness of present knowledge as regards the embryogenesis of the fluid and its relation to the vascular system is admitted, as also, indeed, in respect of not a few problems that are here handled with conspicuous scientific caution. The publication forms a standard reference volume and will bear comparison with any of its predecessors in the same field of research.

NERVOUS AND MENTAL DISORDERS.

From Birth through Adolescence. By B. SACHS, M.D., Consulting Neurologist, Mount Sinai and Montefiore Hospitals, New York; and LOUIS HAUSMAN, M.D., Assistant in Neurology, Mount Sinai Hospital. New York: Paul B. Hoeber, Inc. 1926. With 110 illustrations. Pp. 861. $10.

FOUNDED to some extent on Dr. Sachs's well-known treatise on the nervous affections of children, long since out of print, this volume contains an excellent modern account of the subject, well balanced and proportioned in its comprehensiveness. A long section on organic nervous disease is followed by others dealing respectively with functional and toxic diseases, endocrine disorders, vasomotor and trophoneuroses, and mental conditions. To the commoner organic ailments sufficient space is allotted, but rarities are not forgotten; among these are Schilder's encephalitis, Pelizaeus-Merzbacher's disease, and amyotonia congenita. The interest of the senior author in congenital affections is illustrated by the full descriptions of the conditions associated with defective development. From the same pen, also, comes one of the best chapters in the book—viz., that devoted to the normal child and normal youth. In this will be found a wise, thoughtful, and practical examination of the stages and experiences of childhood, of the nursery and the pre-school period, the school age, puberty, and adolescence; and it comprises a sane and fair criticism of the ills attendant on irresponsible application of psycho-analytic methods to youthful minds.

We have formed a high opinion of this compendium of nervous and mental disease as the clinician meets with it in youthful subjects; it embodies rich experience with a wide knowledge of current literature, and should at once take its place in the practitioner's library.

BOOKS ON CHEMISTRY.

An Introduction to Surface Chemistry. By ERIC KEIGHTLEY RIDEAL, Humphrey Owen Jones Lecturer in Physical Chemistry, Cambridge University. Cambridge: At the University Press. 1926. Pp. 336. 18*s.*

THE recognition that most of the phenomena associated with the colloidal state are the outcome of the enormous surface development of matter in this state has directed the attention of physical chemists to a closer study of the kinetics and structure of surfaces. This volume presents an excellent summary of our knowledge of this extensive subject, beginning with an account of surface tensions of liquids and solutions. Successive chapters deal with the characteristics of the various types of solid, liquid, and gaseous interfaces, the important subjects of molecular orientation and the theory of membrane equilibria being well described. The two last chapters are devoted respectively to conditions of stability in suspensions and emulsions, and to gels and hydrated colloids; an interesting account of the various theories concerning the structure of gels and the conditions affecting the swelling of gelatin is included. Throughout the book the subject is treated from a mathematical point of view, and those who are not well versed in mathematics are likely to find it somewhat difficult reading. But a grasp of mathematical principles being almost essential to the understanding of modern physical chemistry it serves no good purpose to gloss over this fact even in a volume designed as an introduction to its study. Those who make the effort to brush up their mathematics will be well rewarded.

A Text-book of Organic Chemistry, Historical, Structural, and Economic. By JOHN READ, M.A., Ph.D., B.Sc., Professor of Chemistry in the University of St. Andrews. London: G. Bell and Sons, Ltd. 1926. Pp. 680. 12*s.* 6*d.*

Prof. Read holds the view that by the time the student is ripe for the study of organic chemistry, having mastered the fundamental principles of inorganic and physical chemistry, he should be interested in the historical development of the subject. The author has therefore taken the unusual step of introducing into a text-book of organic chemistry a résumé of the development of chemistry from the earliest times—600 B.C. up to the formulation of the theory of molecular configuration by van't Hoff and Le Bel in 1874. Whether this is the right place for such an account is a matter of opinion, but the author has evidently taken pleasure in writing it, and this is perhaps the chief reason why it was included. The remainder of the book is divided into three parts, devoted to molecular diagnosis, aliphatic and cyclic compounds respectively. The book is written in a manner calculated to arouse in the student a living interest in the subject, since emphasis is laid on the technical and economic aspects as well as the purely academic. To achieve this object the author states that many details usually included in a preliminary account have been omitted. It is doubtful whether, in attempting to make the subject attractive, the author has not offered the beginner too varied a fare. There is much to be said for teaching the young student of organic chemistry not too much, but that right well; it is in his more advanced studies that he will appreciate the relaxation offered by a book of this type.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 6, 1926.

CERTIFICATION AND INSURANCE PRACTICE.

CERTIFICATION is the most criticised of the many duties required of the insurance practitioner. The medical profession contends that the certification rules are unnecessarily onerous, and such an analysis of them as was furnished in our columns recently by Mr. SHOETEN SACK, while going far to simplify the difficulties, must none the less have left the impression that the rules are complicated. The Insurance Acts Committee at a public inquiry have described them as oppressive and menacing, and this expression of opinion was significant because in no other respect has a complaint been made in categorical terms that the duties of the panel are unnecessarily burdensome—arduous as they are, they have been accepted in other directions as unavoidable responsibilities following on the contract. But the medical profession is not the only complaining party in respect of certification, for the approved societies on their side allege that their funds suffer serious loss through loose certification, and panel patients are also embarrassed when these societies demand certificates which the doctors hold that it would be irregular to give in the exact form specified. The position as it affects all the parties should be remembered. To the Annual Conference of Representatives of Local Medical and Panel Committees Sir WALTER KINNEAR said last week that the matter was in the hands of the medical profession, whom he would ask seriously to consider what steps they proposed to take to raise the whole standard of certification; but it is only because the doctor's signature is needed to start what may be an abuse that the doctor can be considered as the only agent in bringing the abuse about. The doctor is not responsible for the whole position. After giving confidential figures showing the increased amount of money disbursed in respect of sickness benefit since the onset of the coal stoppage, Sir WALTER KINNEAR admitted that the Circular issued by the Minister of Health last July, in which the insurance practitioners were asked to exercise the greatest care in granting certificates, had had good effect, in spite of which, however, he said, the increase of the claims continued, being so large now in certain parts of the country that it threatened to place the provision of a specialist service in jeopardy. To that grave position the methods of certification have been undoubtedly contributory, but we must look at the circumstances which have determined those methods.

The amount of money available in any particular year for health service under the National Insurance scheme is a fixed quantity out of which sick pay, medical benefit, and additional benefits have to be met. It is evident that one of these payments can only be increased at the expense of the others, and sick pay, where the amount of sickness or the standard of invalidable sickness has altered appreciably, may easily swallow up the resources. The Controller of the Insurance Department of the Ministry of Health, in which capacity Sir WALTER KINNEAR has spoken, put it to practitioners that, however creditable it might be to their hearts, they would be wrong to regard the Insurance Act as a form of relief, and it would not have been possible to convey the counsel in fairer words. It is evident from information coming in from all sides, as the effect of the industrial position becomes more widely felt, that persons are receiving sick pay who are not entitled to it, and in this way the proper development of the medical service under the Insurance Acts is impeded, because insured persons are being deprived of the chance to secure additional benefits to which they are entitled. A full specialist service when established will cost from 7 to 8 millions sterling in a quinquennial period—that is about £1,500,000 per annum—and the additional benefit schemes already approved under estimate will themselves absorb at once a large proportion of all the distributable surplus. The actual figures given by Sir WALTER KINNEAR show for 13,000,000 insured persons only about 8*s.* per person available for additional benefit each year, and it appears that if the expenditure on sickness benefit is maintained at its present rate it will be impossible to provide the additional benefits contemplated by the Bill now in preparation. One week's additional sickness benefit paid to each person on the sick roll in one year would imply that the additional benefits scheme, which 96 per cent. of the approved societies believed themselves to be in a position to give, will have to be withdrawn; and the specialist service, which all look to as the logical development of an insurance scheme for the health of the people, will not materialise. In face of the seriousness of the facts the Conference carried unanimously a resolution asking the Insurance Acts Committee to consider what practical steps can be taken, while pledging their influence to secure strict adherence to the principles governing certification for the purposes of the Insurance Acts.

The position is clear to every practitioner conscientiously anxious to see a proper development of medical benefit, but it is a terribly difficult course which the medical officer is asked to steer, especially in districts where there is no unemployment pay or where Poor-law relief is very stringently administered. It may be that practitioners are yielding too readily to importunities of insured persons, and where this has occurred the societies have a legitimate cause of complaint, and lax certification may be the root of the evil. But there are circumstances over which practitioners have no control. First there is the actual sickness incidence which may be accidentally or capriciously large; but secondly the social and economic condition of the workers must be reflected in the necessity for medical treatment. Factors in health maintenance due to economic stress cannot be recorded in health statistics, but their existence is known only too well to practitioners and social workers. There may have been no serious epidemics during the particular period at which the ominous rise in the disbursement for sick pay has taken place, but neither the absence of epidemics nor the presence of good weather can prevent the devitalising effects of poverty and hardship. Many practitioners found the demands on their services were greater in the June quarter than in the first quarter of this year, and visiting-lists and surgery day-books

would supply the confirming figures. Further, the figures for the drug bills incurred in the treatment of insured persons would probably bear out the assertion that the amount of treatment given to insured persons, as well as the number of certificates, was in excess of the first quarter of the year. The economic condition of the people has, then, a marked if subtle effect upon the demands of the insured persons. Some of these who keep at work so long as there is work to do are of such poor physique that they fall below a reasonable standard of health when they are unemployed. These men and women can always be considered as suitable cases for certificates when they are out of work. Even the most robust worker after a certain period of unemployment deteriorates rapidly, unless he can find some congenial form of activity. It is only to be expected, therefore, that such an industrial crisis as the coal stoppage will throw a considerable number of the workers on to the sick funds. The industrial dispute has had a demoralising effect on a certain class of workers who have come to regard all forms of assistance—Poor-law relief, strike pay, and insurance benefits—in the same category. It is consoling to find that the approved societies are beginning to realise the effect of the regulation which allows of the immediate transfer of an insured person from the list of one practitioner to that of a neighbour. It was seen from the first that such an adherence to the principle of "free choice" might be used as a method by the disgruntled insured person to find "a nice, kind doctor." By this means undue pressure has been brought to bear upon the practitioner, who, in refusing the certificate, loses his patient. This situation is likely to be changed in the near future by new rules as to immediate transfer.

It may well be doubted whether it is possible or practicable to set up a definite standard of health below which the worker shall be regarded as incapable; it is very difficult even for professional referees to define what they mean by incapacity. Generally speaking, if the exertion necessary to carry on the occupation for the normal hours is likely to aggravate the condition and do physical and bodily harm, the worker cannot be said to be capable of performing the work. Any case whose treatment involves continuous care and supervision cannot go to work. But in estimating the exact right of a particular patient to a particular certificate so much depends on the personalities of doctor and patient that genuine and conscientious opinions cannot be controlled by regulations. We do not want a set of regulations analogous to the excessive prescribing regulations for controlling the number of certificates given. On the other hand, it is not outside the bounds of possibility that the number of certificates of the various practitioners should be compared and some investigations made into the work of those whose figures exceed the district average. The referee work of the regional medical staff has had its effect in cutting down the period of sickness benefit in a proportion of cases, but the feeling ought not to spread among approved societies that if proper certification is wanted they must send every case to the referees, and even this will not have the desired effect unless every case is referred on the initial certificate, which is obviously impossible. Practitioners who have the benefits of the Acts at heart, and who are anxious that the services of specialists should be made available for their insured patients, will exercise all necessary care in a delicate position, but some effort should be made through the panel committees to see that the interpretation of the words "incapable of work" is made more or less uniform in each area.

THE CONTROL OF MALARIA.

AN interesting report [1] on the control of malaria in the plantations of Ceylon has been written by Sir RONALD ROSS, who lately paid a six weeks' visit to the island. It is now many years since he pointed out that elimination of malaria from a district depends on detection of the anopheline vector, and it is a significant commentary on this pronouncement that he was told, when in Ceylon, that all the species of anopheles which are capable of conveying local malaria have not even yet been determined. Everyone is well aware that all attempts to control malaria are necessarily expensive; but, as Sir RONALD ROSS remarks, it is not yet always clearly understood that malaria is expensive too. He gives a striking example of this in a comparison of four contiguous Cingalese estates, where money was lost by failure to tap rubber trees—this failure being attributed to malarial illness. The estates had spleen-rates of 15, 51, 76, and 76. Treating the last two as one the loss of receipts per 1000 blocks of trees, through failure to tap, was in the proportion of 1, 3, and 1000. The total loss for one month only was about £800, quite apart from all expense involved in treating the sick. Ignoring the humanitarian side, the elimination of malaria is financially profitable—a fact which is still far too little appreciated. One of the difficulties, however, is that money must be put down in advance to obtain this prospective improvement, and almost always it has to be borrowed. Loans are none too easy to secure; funds thus raised cannot be lavishly expended, and every penny must do its work. Whilst Sir RONALD ROSS is obviously right in saying that eradication of all anopheles larvæ is an effective means of getting rid of malaria, there are many who will differ from his opinion that too much is made of small differences in the habits of particular kinds of mosquito, because they think that wholesale destruction is more expensive than what is called species sanitation. This last involves close observation of the habits of adults and larvæ of the anopheles locally responsible for conveying malaria, and it seems likely that available money—of which there will be little enough—will increasingly be spent on the specialised destruction of those mosquitoes whose disappearance leads to the greatest financial gain.

The control of malaria in a country where it is prevalent is an undertaking which needs unremitting vigilance. This is perhaps the most important lesson to be learnt from a valuable report [2] recently published by the Malaria Advisory Board of the Federated Malay States. During the year, in spite of all that is being done, there has been an increase in Malaya in the number of malaria cases treated in hospitals—an increase attributed variously to a greater virulence of the parasites and to a large influx of malaria carriers, the result of vigorous recruiting from India. The suggestion that this influx of new blood (in a literal enough sense) is responsible for the increase of malaria falls in with certain findings and conclusions of the Malaria Commission of the League of Nations which recently toured in Eastern Europe. These are that inhabitants of any locality acquire immunity, or at least tolerance, to local strains of malaria parasites; that movements of large bodies of persons, some at least malarially infected, are followed by epidemic malaria—of which the tens of thousands of deaths in

[1] Malaria Control in Ceylon Plantations, a Report to the Ceylon Association, London, by Sir Ronald Ross, K.C.B., F.R.S.

[2] Report for 1925 of the Malaria Advisory Board. Supplement to "F.M.S. Government Gazette," Kuala Lumpur, 1926.

Russia in 1922 is a vivid example—and that these epidemic waves are reasonably attributable to the introduction of strains of malaria parasites to persons who have acquired no special immunity to them. This explanation, however, was not unanimously accepted for Malaya, as it was pointed out that the increase in malarial incidence began in certain estates before there was any increase in recruiting from India.

The Federated States Government has taken a number of immediately practical steps which it is interesting to record. Subsoil drainage pipes, which have been found so necessary in Malaya, are now buried at a minimum depth of 5 feet, and, if possible, 25 feet from trees, and the antimalarial engineer is now investigating the best means of dealing with those penetrating tree roots which may interfere with the proper action of the drains. The Advisory Board has also dealt with another matter of great practical importance—namely, the size of mosquito nets—and has laid down for government institutions minimal measurements of 6½ feet long, 4 feet wide, and 5½ feet high. The emphasis thus laid on the importance of a wide net agrees with, and is perhaps instigated by, H. M HANSCHELL'S observations in Central Africa. The Board advises that where mosquitoes are numerous the lower two or three feet of the net should be made of cloth, so that mosquitoes may be held off by the cloth if the limbs should come into contact with it. The net lies within the posts, is tucked under the mattress, and, during the day time, is drawn back on runners to the head of the bed. This arrangement is the one generally advised at the present day; but if the bed-maker be as trustworthy as the ordinary Indian bearer a yet wider net—trailing on the ground clear of the bed, put up during daylight after the bed has been soundly beaten, and suspended from the walls or roof of room or verandah—will give the added comfort of dispensing with a mattress and the increased protection afforded by its dropping some distance clear of the bed. A solution of magnesium sulphate was mentioned as a recommended mosquito repellent, but no member of the Board had found it, to say the least, lasting in effect, nor discovered anything more satisfactory than citronella oil. Nor did the possible breeding of bats as an anti-mosquito measure find any encouragement. Propaganda on malaria and other diseases has been successfully carried on at the three huge agricultural shows held during the year; the attendance at Kuala Lumpur fair was estimated at 70,000. But, after all, the most useful agents in propaganda are successful results of antimalarial measures, and it is significant that the *kampong* holders of one district have asked for money to embank and drain their compound, undertaking to do the work cheaply and pay the interest on the loan.

PAYING BEDS IN VOLUNTARY HOSPITALS.

THE cost of sojourn in a well-equipped hospital ward has grown steadily during the last 50 years and may, perhaps, now be regarded as having reached a fairly stable figure in the neighbourhood of £2 5*s*. a week. This at all events is the result of dividing by 52 the average annual cost of maintaining a bed in the voluntary hospitals of England and Wales, excepting the London area. There is a total of nearly 39,000 beds in these general hospitals and another 7300 beds in special hospitals; and in a report [1] which appears this week Mr. R. H. P. ORDE, acting director of Hospital Services for the Joint Red Cross Council, shows that 75 per cent. of the hospitals providing these beds have a credit balance on maintenance account for the year 1925, and their invested funds have increased by £6,000,000 during the last five years. Providing, as they do, facilities for investigation and team treatment not available elsewhere or only available at a very large outlay, it is natural that the demand for beds should become ever more insistent from the side of those who can afford to pay the cost of maintenance plus a fee for medical attendance. Response to this demand has already been made in one way or another at institutions, large and small, scattered over the country. As Mr. ORDE remarks, it is characteristic of the voluntary hospital world that practice precedes theory, and paying beds have been available in the infirmary at Preston since 1876 and at Liverpool since 1887, while at the present moment there are in England 171 provincial hospitals, 27 of them of large scope, which make some provision of this sort. The hope expressed by Mr. A. G. E. SANCTUARY at the Oxford meeting of hospital officers, that the medical profession would combine with hospital managers to expand and remodel the existing system of institutional treatment rather than leave the paying side of the work to be taken up by profit-making concerns, is evidently shared by the whole lay hospital service; the tone of replies received from hospital superintendents and secretaries embodied in an appendix to Mr. ORDE'S report is proof of this. One officer after another remarks on the voluntary hospital being the obvious and best place for any class of patient to be treated in time of acute illness, and several make a point of the permanent friends who would be gained for the hospital by having themselves experienced the amenity and efficiency of its wards. Diversity in the actual arrangements made is healthy enough in giving an opportunity of trying out possible alternatives, but there is a growing unanimity in the broad lines of practice. At Liverpool in 1887 a newly-built block included five one-bed wards, each with its own fireplace, on either side of a private corridor leading to one of the medical wards. At Brighton in 1923 eight single- and six two-bedded rooms were added, controlled and served by the main hospital. At Chester in 1921 private wards were opened in the form of cubicles, extended later into an adjoining wing with separate approach from the main staircase. At Northampton preference is shown for attaching two or more rooms to each ward unit. At Barrow, since 1921, two houses adjoining the hospital have been run as a private nursing home in connexion with it. At Burton-on-Trent a separate block of 18 beds was erected, connected by bridge and balcony to the main hospital, catering being done in the main building. Yeovil remarks on the saving of trouble and expense from having the side wards in the hospital and not in a separate block. Accommodated on one or other of these lines the patient pays from 3 to 7 guineas a week, the tendency being towards a standard fee of 5 guineas. With one or two exceptions the fee for professional attendance is a matter of direct arrangement with the hospital staff or the medical attendant who has sent in the patient. Rarely is inquiry made into private means, although at certain small hospitals fees are fixed by the house committee, and there is talk of appointing an almoner at Brighton. Several hospitals have the pleasing experience that it is unnecessary to do this as all who pay the standard fee augment according to their ability the charge made with a donation to the general hospital funds. It is evidence of this kind, so carefully collected in Mr. ORDE'S report, which enables Sir ARTHUR STANLEY to state in his foreword that there is no question of the call for these beds and to urge that sustained efforts should be made to provide them generally in the voluntary hospitals of the country. This is a development to be considered in the broad scheme of hospital coördination fore-shadowed by the Minister of Health.

[1] Report on the Voluntary Hospitals in Great Britain One of the valuable appendices to this report is printed on p. 986 of the present issue.

Annotations.

"Ne quid nimis."

DR. FOORD CAIGER'S RETIREMENT FROM THE M.A.B.

Dr. Frederick Foord Caiger retired from the service of the Metropolitan Asylums Board on Oct. 4th after an association of 39 years with the work of the infectious hospitals. He entered the service of the Board in 1887 as an assistant medical officer, and two years later was appointed medical superintendent of the South-Western Hospital, a post he continued to hold until his retirement. In 1893 his services were utilised in the opening of the Fountain Fever Hospital, Tooting, and six years afterwards he was deputed to open and organise the administration of the Grove Fever Hospital, Tooting, an institution of over 500 beds, which was urgently needed to meet an unusually high seasonal rise of enteric fever. At the end of 1921 Dr. Caiger was appointed chief medical officer of the Board's Infectious Hospitals Service, becoming at the same time emeritus physician to St. Thomas's Hospital. In his responsible position of fever chief he was called upon to guide the policy of the Board in such important questions as the use of the Schick test, the early administration of antitoxin in diphtheria, and the provision in the hospitals for cases of measles. Dr. Caiger was the first chairman of the Scientific Advisory Committee set up by the Board, after consultation with the Medical Research Council, to advise on the extension of knowledge by research and the full and prompt application of available knowledge to fever practice. As an outcome of this advice the Board in 1925 appointed a director of research and pathological services and decided to establish two thoroughly equipped group laboratories. Dr. Caiger's retirement will mean the loss to the Metropolitan Asylums Board of a wise and tactful administrator, and to the medical staff and students of a good clinician and an attractive teacher. In many capacities he has contributed to the efficiency of the public health services of the metropolis. We are glad to learn that his help will remain available to private practitioners in the difficulties which arise in the diagnosis and treatment of fevers.

POLIOMYELITIS AND SCHOOL INFECTION.

WE referred last week to the fact that the autumn increase in the prevalence of acute poliomyelitis and acute polio-encephalitis was greater this year than usual. Poliomyelitis was separated from other forms of paralysis and defined as a clinical entity by Heine in 1840; in 1887 Medin called attention to its occurrence in epidemic form; in 1913 Flexner and Noguchi isolated an organism which was capable of producing the disease in monkeys and could be recovered from the diseased animals in pure culture. This organism was present in the pharyngeal secretion of a large proportion of sufferers from the disease, and also in the secretions of contacts and of certain patients who presented non-nervous symptoms. The disease is now regarded as a specific infection, and, though many questions in regard to its epidemiology still remain unsolved, it is established that only a fraction of those who are infected develop the paralytic form of the disease. It would appear that the great majority of the population in civilised communities is immune to the infection, or at any rate well protected against it. Children in the first year of life seem almost immune; those in the second, third, and fourth years are the chief sufferers and account for 80 per cent. of all cases; after the age of 4 the incidence declines rapidly. The fact that school infection rarely plays any noticeable part in the spread of the disease in the larger communities suggests that nearly all children in such areas are immune by the time school age is reached. It seems likely that the immunity they possess is not the result of any bodily change as they get older, but is acquired by mild infection, for in rural districts with their more limited intercourse, the disease is acquired later than in towns, the average age of incidence being somewhat higher. In a community from which poliomyelitis has been completely absent for a number of years, the younger children may have had no chance of acquiring immunity and school infection may become a danger. Wickmann, in his study of the Swedish epidemic, recorded several instances of it. The account of the smaller but more recent Tübingen epidemic of 1922 [1] contains two instances of the spread of infection through institutions in which the children had had no chance of acquiring immunity. In a village several miles from Tübingen an epidemic of "influenza" with catarrh of the upper air passages as its chief symptom fell upon the infants' school and affected so many children that the school was closed by the authorities. Then the true nature of the infection was revealed, for the teacher and one of the pupils died from paralysis. The second instance was in a home for infants comprising 14 children; all the inmates suffered from "feverish colds" and their temperature charts, all very similar, suggested an ordinary slight "influenza" epidemic. But paralysis appeared in three of them. In another German village where poliomyelitis had not been encountered for 11 years still another instance was observed [2]; a boy, who himself later suffered from paralysis, is believed to have contracted the infection from a case in the street in which he lived, and continuing to attend school while suffering from catarrhal and even paralytic symptoms he was apparently the means of bringing the infection into his school, and the disease in its paralytic form into the homes of three of his class-mates, four members of these families being involved. Oppenheim supports the statement that an increase in the prevalence of poliomyelitis during the school term and a decrease during the holidays has repeatedly been observed. If a country succeeded by hygienic measures in stamping out the infection for, say, ten years, it would appear to be rendering itself liable to the danger of an epidemic in its schools. Should this be accepted, prophylaxis would lie not so much in hygiene as in the development of a positive means of producing immunity—a method similar to those now being employed for diphtheria and scarlatina, or, as a more temporary measure, the administration of immune serum obtained from convalescents, and, if a suitable technique can be devised, from animals.

STANDARDISATION OF ARSPHENAMINES.

IN the September number of *Clinical Medicine* will be found an article on the standardisation of arsphenamines, by G. W. Raiziss, who points out that since the introduction of arsphenamine and its derivatives mercury occupies a position of secondary importance in the treatment of syphilis. These products have remarkable effects upon syphilitic symptoms and the Wassermann reaction, and their therapeutic efficiency in experimental trypanosomiasis is very marked, the injection of a dose very much below the maximum tolerated dose producing a complete disappearance of trypanosomes from the blood of rats, even where millions of the parasites had previously been present. Discussing the chemical constitution of the arsphenamine group and the reactions resulting from the administration of these compounds, Dr. Raiziss ascribes the cause of these reactions to impurities in the drug, and points out the necessity for a standard which will reduce the toxicity and retain the curative power of the substance. The United States Government assessment of the tolerated dose of arsphenamine in experimental animals is 120 mg. per kg. of body-weight, and for neoarsphenamine 240 mg. per kg. of body-

[1] Schall: Münch. med. Wochenschr., 1923, lxx., 763.
[2] Graef: Ibid., 1925, lxxii., 55.

weight, but samples allowing doses of 180 mg. of arsphenamine per kg. of body-weight and 400 mg. of neoarsphenamine per kg. have been obtained. Thus a man of average weight should be able to tolerate a dose of 24 g. of neoarsphenamine, whereas the actual dose employed is only 0·9 g., so that the margin of safety is very large. Dr. Raiziss describes some of the tests which have been performed with a view to standardisation of these products, and mentions difficulties which have been encountered. The term "chemotherapeutic index" has recently been adopted in comparing the efficiency of various drugs. This is the value obtained by dividing the maximum tolerated dose by the minimum curative dose. A point which has yet to be decided is whether the administration of these chemical compounds actually eradicates the infection or merely extinguishes the visible signs. The lymph node transfer is a valuable criterion in this connexion, but, as Dr. Raiziss points out; there are still many problems of research to be solved before a standard preparation of arsphenamine can be prepared.

BANANA FLOUR AS A FOOD FOR INFANTS.

THE use of preparations of banana in the feeding of both sick and healthy infants has extended considerably in America in recent years. Dr. A. E. Vipond, of Montreal, was among the first to draw attention to its advantages; in a paper published in 1911 he described the treatment of infantile diarrhœa by feeding with a flour obtained by drying and grinding green bananas. In a more recent communication [1] he ascribes to banana flour a far wider field of utility and claims for it a prominent place in the treatment of infantile diarrhœa and cœliac disease, and also in the artificial feeding of infants. An analysis which he gives shows that 100 parts of the flour contain only 3 of protein and 0·5 of fat, while the carbohydrate reaches nearly 80. A small portion (7 per cent.) of this is in the form of dextrose; the nature of the remainder is not stated, but its components are said to be "entirely different from the other starchy components, and readily assimilable by the youngest infant." It is claimed that the flour is rich in vitamins and that in combination with condensed milk it forms an ideal infant food which will not cause rickets. The use of bananas in cœliac disease has received support from other authors (S. V. Hass, C. G. Kerley) and has been given trial in this country. Dr. Vipond believes that sufferers from this disease do not show intolerance to this as to other forms of carbohydrate, and that they benefit from the extremely low fat-content of the mixture. He considers banana flour and condensed milk to be the best food for infants who cannot be nursed and who do not thrive on modified milk. He refers to a very large number of successful cases and has no serious failures to record. This result would appear to be an example—comparable to the successes obtained by whole-milk feeding—of the remarkable powers of adaptation possessed by the infant, as the percentage of carbohydrate present in this mixture is enormous and the protein-content relatively small.

PNEUMONIC PLAGUE.

IN a long article published recently in the *Semana Medica* Dr. J. R. Paso deals with the relation between pneumonic and bubonic plague, and the genesis of pneumonic plague as a separate entity. His actual experience, he states, is limited to the bubonic form; he quotes cases in which pneumonia supervened on bubonic infection, but recognises that this event is no more than a complication. He has made, however, a thorough study of the literature, of which he gives a long bibliography, and from this survey has come to the following conclusions. (1) Bubonic and pneumonic plague are distinct, though they are both caused by the bacillus of Yersin, and occur together. (2) Pneumonic plague is disseminated by infection of the upper air passages with droplets proceeding from those already affected; it is not an infection of the blood stream, and is transmitted by contact, not by parasites. (3) In pneumonic plague Yersin's bacillus is not the primary factor, but is a *microbe de sortie*, falling on favourable soil, prepared by the invasion of other organisms. It is, in fact, a symbiosis in which the Yersin organism ultimately plays the dominant rôle. In conjunction with his chief, Prof. Destephano, Dr. Paso puts forward the hypothesis that epidemics of pneumonic plague are due to the simultaneous onset of influenza and plague under conditions which favour the propagation of both diseases—namely, filth, overcrowding, and cold weather. A desire for warmth, he remarks, drives people to herd together in their wholly insanitary habitations. Dr. J. N. White, who reported on this subject to the Health Committee of the League of Nations, says that it is necessary to assume some symbiosis in order to explain the facts; but it is generally agreed that further investigation of new epidemics is essential before any definite conclusion can be reached.

[1] American Medicine. New series, July, 1926, vol. xxi., No. 7.

THE PRECIPITIN TEST FOR HUMAN BLOOD.

UNTIL a few years ago there were no tests for human blood. The criminal investigator could only state that the blood on a weapon or garment was that of a mammal, and the defence that the accused had recently killed a bullock or a pig would often be impossible to refute. The growth of immunology and the discovery of the precipitin reaction have, however, added enormously to the odds against the murderer. This test was the subject of a communication to the Medico-Legal Society on Oct. 28th by Dr. John Glaister, jun., son of the medico-legal adviser to the Crown for the West of Scotland. Dr. Glaister, who has performed over 1000 tests with antiserum in Glasgow University during the last two and a half years, concludes that the precipitin test may be safely applied under nearly all conditions. It is, however, as Dr. H. H. Scott pointed out in the course of the discussion, by no means foolproof. Not only must the man who performs it have adequate and sufficiently numerous controls, but he must, as Major C. Newcomb remarked, have much experience in performing the test. G. H. F. Nuttall, who worked out the biological tests for blood some 25 years ago, found a difficulty in getting good results from old blood-stains in the tropics, but Dr. Glaister has been successful with stains 16 weeks old, even when they have been exposed to dry heat up to 200° C. Temperatures between 210–230° C. change the blood so that it will not form a solution. Steeping in cold water does not affect the test, although the albumin of the blood passes to some extent into solution, but soap in the solution under test may cause clouding and render the results unreliable. It is, Dr. Glaister said, of the first importance that the antiserum should be absolutely clear. It should be tested by putting the same number of drops as are to be used in the test into normal saline as a control. The slightest cloud justifies the rejection of the whole solution. He stigmatised the use of opalescent antiserum as a dangerous pitfall in medico-legal work, because it produces a cloud in any clear solution to which it is added. The cause of clouding in serum is not yet known, though Dr. Scott pointed out that it might be due to killing the animal too soon after a meal, when there was still a large amount of fat in its blood stream. He suggested that the increased opalescence which appears when the serum is added to any other solution may be due to a colloid change, the fat becoming more finely emulsified. The error which results from the use of opalescent antiserum should be suspected even if it has been allowed to enter into an actual experiment, because the haze produced is distributed evenly throughout the tube, whereas the haze of a positive reaction appears only in the lower third of the tube. The reaction from an

old stain is complicated by an upper zone of cloudiness due to bacterial invasion. Dr. Glaister confirmed Nuttall's observation that the presence of a second blood in the stain does not compromise the reaction, but found, nevertheless, that it reduces its strength. The absolute specificity of the precipitin test has been accepted by many expert pathologists, but Dr. Glaister found himself compelled to support the observations of Kister and Wolff, who showed that antihorse serum might give a positive reaction with human serum in an acid medium. He found that acid media interfered with the reaction and that alkaline media prevented it. This is probably due to the interaction between the blood-serum and the acid or alkali in the fluid under test. Dr. Scott agreed that it might be impossible to prove that human blood was not horse blood, but he has not found the converse to be true. The precipitin test is known to be unreliable when the stain is on leather, possibly as a result of some part of the tanning process. Dr. Scott had also found that stains on wall-paper were unsuitable for this test, and that it was necessary to bubble CO_2 through such materials as mortar, lime, and plaster in order to get rid of the calcium carbonate before testing. Dr. Glaister's exhaustive experiments with different kinds of wood, rough and polished, and with many kinds of material, showed, however, that the precipitin reaction remained unaltered, even after 14½ years in one woollen stuff. Dr. Glaister found that the foam test was of no value for indicating the strength of the blood serum present. He therefore introduced the "shaking test," which he found to give some guide to the strength. Both of these tests are of qualitative rather than quantitative value, and would be compromised by the presence of soap or anything else which produces foam. The colour-test also could be affected by many factors, such as CO_2, the age of the stain, the amount of the hæmoglobin, and the species of the animal which supplied the blood. Dr. Glaister has introduced certain refinements of technique, such as his microscopic cover-glass troughs, framed in black wax, which will be of interest to those who work with this reaction, and his careful survey of the field will strengthen belief in the medico-legal value of this test.

THE ROYAL COMMISSION ON MENTAL DISORDER.

IT is now just over two years since the Royal Commission on Lunacy and Mental Disorder held its first session. Public disquiet had been aroused by various publications and legal proceedings with their alleged "revelations," and the Commission was appointed under the following wide terms of reference:—

1. To inquire into the existing law and administrative machinery as regards England and Wales in connexion with the certification, detention, and care of persons of unsound mind, or alleged to be of unsound mind.

2. To consider the extent to which provision is or should be made for the treatment without certification of persons suffering from mental disorder, and to make recommendations.

The Commission, with this widespread popular anxiety in view, made it their special charge to hear patiently and consider carefully the evidence of all kinds of witnesses, and spent many months in a conscientious endeavour to establish a firm basis for their subsequent recommendations. The minutes of evidence, which have recently been published [1] and which occupy three large foolscap volumes, are the unadorned transcription of the shorthand notes and have neither preface nor summary. This mass of evidence includes that of medical associations, individual medical men, medical officers of mental hospitals, nurses, commissioners in lunacy, legal authorities, and ex-patients; 21,659 questions were put and answered. The appendix contains memoranda prepared by the British Medical and Medico-Psychological Associations, and a careful and complete index of the whole. These documents, together with the report of the Commission,[2] make very interesting reading for those who are concerned in mental hospital administration, and constitute valuable reference books for the library shelves.

[1] Part I., Minutes of Evidence taken Oct. 7th, 1924, to Feb. 10th, 1925. Questions 1–11,834. £1 1s. Part II., taken Feb. 24th to Dec. 11th, 1925. Questions 11,835–21,659. £1 1s. Part III., Index and Appendices. 10s. 6d. H.M. Stationery Office. 1926.

IMAGINARY ANNALS.

THOUGH the Royal Society of Medicine can claim ancient lineage, its roll of Fellows is necessarily confined to somewhat recent times, and there is ample scope for the kind of reconstructive history with which Sir D'Arcy Power entertained the Section of Comparative Medicine in his presidential address on Oct. 27th. Hippocrates, he thought, would have been chosen first President of the Section if it had existed in his day, for he realised that the diseases of men and of animals were closely allied. A candidate for honorary membership would have been a man of colour, Mago, the Carthaginian, who was termed the father of agriculture, and wrote 28 volumes on all branches of the subject. Xenophon, too, would have been a member, as he had a real interest in horses, and was skilful in their management, summing up his views in the words "keep the hoofs hard and the mouth tender." Vegetius would also have belonged to their body; far in advance of his time, he ridiculed the prevalent opinion that disease was evidence of Divine wrath; whilst Pliny would certainly have joined the Section, for, like the Master of Balliol, he took all knowledge for his province, and his "Natural History" was an eminently readable book. Next to Pliny, said Sir D'Arcy Power, Cornelius Celsus must have been included, though it was not clear whether he was a veterinarian or a practising doctor. Coming nearer to our own time, such a Section would have admitted to membership Conrad Gesner, who was designated the German Pliny, and who awakened science from its long sleep. He practised for many years at Zürich, and when, at 49 years of age, he died of the plague, he had written 49 volumes dealing with the habits and diseases of animals. Gervase Markham and Robert Lovell would likewise have found recognition, the latter for his complete history of animals and minerals—notwithstanding that Major-General Sir Frederick Smith wrote of him as a soldier, a scholar, a gentleman of fortune, a minor poet, a literary hack, and a social parasite. Had such a combination as the Section been formed in his lifetime, John Hunter would have been elected its President; Astley Cooper, Cline, and Simmons would have been associated with him, and Edward Jenner would have been persuaded to read a paper. Passing to recent times, Sir D'Arcy Power spoke of Charles Sainbel, William K. Parker, and Thomas Henry Huxley. In proposing a vote of thanks, Sir W. Arbuthnot Lane added to Sir D'Arcy Power's list the name of Æsculapius, which, he said, should certainly have been included; and Prof. F. Hobday, seconding, congratulated the Section on its President's erudition. We hope that the Royal Society of Medicine will invoke his aid if they should follow the example of some American societies and elect to posthumous Fellowships distinguished physicians whom accident of birth has deprived of this recognition in their lifetime.

OFFICE INTERNATIONAL D'HYGIÈNE PUBLIQUE.

THE final day of the October session of the Permanent Committee of the Office International d'Hygiène Publique, just concluded in Paris, was saddened by the announcement of the death of Mr. J. de Cazotte, the director of that organisation from its establishment in 1907 until his resignation, on grounds of ill-health and advanced age, after the International Sanitary Conference in June last.

[2] Cmd. 2700. H.M. Stationery Office. 1926. 3s. 6d.

While the value of his services to public health during this long term of office was always well known to his own international committee and in official circles, it was little realised, outside them, how much Mr. de Cazotte had contributed to the organisation and development of that mutual coöperation between the public health services of the world which is now accepted on all sides as a necessary and normal part of official international relations. A French diplomat, with no pretentions to medical knowledge or training, Mr. de Cazotte had acquired an experience and sagacity in all matters relating to international agreements on health questions, notably regarding the successive conferences and conventions which regulate quarantine and port sanitary work; these proved invaluable wherever such agreements had to be prepared and revised. Keeping always meticulously within the limits of his official duties, he had come to possess a sure instinct for discriminating between those matters which were officially appropriate and necessary for the effective functioning of the organisation he directed, and those which might infringe the cardinal statute that the Office International d'Hygiène Publique must not in any way interfere with matters of internal administration in any country. He had the satisfaction of seeing the number of countries which adhere to the agreement of 1907 steadily increase until now its committee includes technical delegates appointed by almost every government of the world; his untiring industry was largely responsible for the high standard which the monthly *Bulletin* of the *Office International d'Hygiène Publique* has always maintained, while his last official appearance was on the occasion of the completion of the International Sanitary Convention of 1926, and its signature by the representatives of nearly 70 governments. He has been succeeded in the office of director, as was fitting, by Dr. Pottevin, his medical collaborator during the whole of this period, who has long occupied a distinguished place in the domains of hygiene and in the French Senate, of which he is a member. The new director, in developing the wider policy and outlook which the Office International has assumed in consequence of the recent agreements and of its function as the Advisory Health Council of the League of Nations, undertakes a difficult task, but one for which the high reputation already possessed by the International Office will be an invaluable asset.

THE CAUSATION OF PHLYCTENULES.

PHLYCTENULES are among the most common affections of children met with in the ophthalmic outpatient department, and though, in the majority of cases, eminently amenable to treatment, are in a minority obstinately recurrent, leaving more or less permanent scars on the cornea which are responsible for a notable degree, not of blindness, but of impaired vision in the general population. The ætiology of the disease has long been disputed. Many have held that there is a real connexion between phlyctenules and tubercle, though exactly what no one has offered to explain. Tubercle bacilli have never been found in phlyctenules and to say that the affected children are, if not tuberculous, candidates for tuberculosis, does not carry us very far. The same might be said of any poorly nourished children. It is, no doubt, a fact that attention to the diet and nutrition of the child is an important element in treatment, but that does not explain the typical phenomena of the disease. Mr. Bishop Harman has put forward a theory connecting it with decay of the milk-teeth and suggests that the lesion is a herpetiform eruption caused by peripheral irritation of collateral branches of the second division of the fifth cranial nerve in ill-nourished children. So far as we are aware this theory has not received any marked degree of general support and it is obviously inapplicable to many cases that occur. Some new light on the subject is to be gathered from a contribution to a *Festschrift* by the Swedish ophthalmologist, Hugo Laurell, dealing with the pathogenesis of scrofulosis.[1] Put shortly, his theory is that the bites of human parasites may introduce into the host foreign proteids which give rise to a condition of anaphylaxis in which any external application of the same or even of kindred proteids causes a local reaction of which the phlyctenules are a manifestation. The parasites with which children subject to phlyctenules are most commonly infested are first worms, and especially oxyuris, secondly pediculi. Both cause local irritation and scratching, and the conveyance of the offending substance by means of the fingers to the conjunctiva must frequently take place. In dealing with affections so common among the children of the poor, it is obviously difficult to get any statistical proof of the connexion between these conditions that is not free from objection. At the same time a perusal of Dr. Laurell's article does leave the impression that there probably is some truth in this theory. At any rate, he has pointed the way to a direction in which research would appear to be hopeful. It is established that phlyctenules can be experimentally produced by the local instillation of tuberculin or of dead tubercle bacilli in animals already infected with tuberculosis. Funaishi has found that in non-tuberculous animals injected with non-tuberculous bacteria (staphylococci, &c.), instillation of the proteids of these bacteria has a like effect. It is, therefore, clear that tuberculosis is no necessary antecedent to phlyctenular disease. Laurell's theory is that the subjects of phlyctenules, having been inoculated with the proteids of parasites, usually oxyuris or pediculi, reinfect their eyes by means of their fingers which carry the noxious material from the infected spots to the conjunctiva. If this is a fact one would expect to find phlyctenules more often at the inner margin of the cornea than at the outer. Mr. Harman found that 70 per cent. were situated in the outer and upper quadrant, the spot to which the orbital branch of the second division of the fifth nerve sends its terminal twig. This is a point which might be reinvestigated.

WE regret to announce that Francis Mitchell Caird, emeritus professor of clinical surgery in the University of Edinburgh, died on Nov. 2nd.

THE Bradshaw Lecture of the Royal College of Surgeons of England will be delivered in the theatre of the College by Prof. E. W. Hey Groves next Thursday, Nov. 11th, at 5 P.M., the subject being Reconstructive Surgery of the Hip-joint. Students and others, who are not Fellows or Members of the College, will be admitted on presenting their cards.

The Services.

ROYAL ARMY MEDICAL CORPS.

Col. H. B. Fawcus to be Maj.-Gen.

The undermentioned Capts. to be Majs.: H. S. Milne (Prov.), Q. V. B. Wallace, F. C. Chandler, and T. F. Kennedy.

Capt. A. P. Draper, is secd. for serv. under the Colonial Office.

TERRITORIAL ARMY.

Capt. J. H. Cobb to be Maj.

ROYAL AIR FORCE.

H. Penman is granted a short service commission as a Flying Officer for three years on the Active List.

Flying Officer N. I. Smith ceases to be seconded to the King's Cross Hospital, Dundee.

Flight Lt. T. M. Walker is transferred to the Reserve, Class D.2.

INDIAN MEDICAL SERVICES.

Temp. Lts. Girdhari Lal Puri and Daya Ram Malhotra to be Temp. Capts.

Tharmale Govinda Raghava Panikkar to be Temp. Lt.

[1] Upsala Läkereforenings Förhandlingar, Upsala, 1926 (article published in German).

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CXCVI.—THE TREATMENT OF INFECTION OF THE NASAL ACCESSORY SINUSES.

FOR some years there seems to have been an increasing number of cases of acute sinusitis during the period autumn to spring, after which only sporadic cases occur.

Symptomatology.

In a typical case the patient gives the history of a severe cold. During the first week aching and throbbing of the cheeks and at the back of the eyes, nasal obstruction, and brow-ache with mucoid secretion occur. The condition may then subside, or, if neglected, the pain may become more intense and more localised, usually over one cheek with tenderness to pressure in the region of the inner canthus or in the supraorbital region, which becomes definitely painful and tender. With the pain there is nasal obstruction, followed by muco-purulent or purulent discharge on the affected side. In other cases there may be most pain in the temporal region, or frontal and vertical headache with tenderness in the occipital region and stiffness in the back of the neck. Or a sharp attack of influenza with nasal symptoms may leave a unilateral discharge from the nose or a persistent post-nasal catarrh. Later the only symptoms may be a bad smell in the nose. Very severe or fulminating cases may show signs of acute septic absorption or even septicæmia, the patient becoming rapidly worse, with a swinging temperature, and later drowsy and toxic. Meningitis, thrombosis of the frontal vein, or osteomyelitis with spreading œdema of the brain may follow, especially when the frontal sinus is involved. In most of these severe complicated cases there has been neglect of a bad cold, an unrecognised acute sinusitis, or a chronic inflammation which has suddenly lit up.

Differential Diagnosis of the Sinus Affected.

Roughly speaking, unilateral brow-ache suggests frontal sinusitis; pain deep to the eye and especially at the inner canthus suggests ethmoiditis. Face-ache suggests maxillary antritis; occipital and vertical pain, sphenoidal sinusitis. Similarly, tenderness over these regions may help to localise the lesion. There are, however, several traps here; for instance, the pain of acute maxillary antritis may be localised to the temporal or supraorbital regions on the affected side. The headache may be occipital, vertical, or frontal in cases of ethmoiditis without involvement of the sphenoidal sinus. Routine examination should, therefore, always be made.

Anterior Rhinoscopy.—On examining the anterior nares with a nasal speculum, swelling and congestion of the middle and inferior turbinals will be the only sign of sinusitis unless the sinus has commenced to drain. Later mucus or muco-pus may issue from under the anterior end of the middle turbinal, when the antrum or frontal sinus are affected and still later a streak of definite pus will be seen.

Posterior Rhinoscopy.—With the post-nasal mirror a streak of pus may be seen coming down from under the posterior end of the middle turbinal, since the antrum often drains backwards. If the posterior ethmoidal cells or the sphenoidal sinus are involved the streak of pus will issue high up in the post-nasal space above the posterior end of the middle turbinal.

Transillumination is most useful in antritis. Absence of a crescent under one eye is diagnostic of past or present antritis. A clear crescent under each eye negatives an acute or chronic affection. Transillumination of the frontal sinus is inconclusive, the diagnosis being more easily made by the presence of tenderness, swelling, or reddening over the area combined with the results of anterior rhinoscopy and radiographic examination.

It is noteworthy that—

(1) In some persons, especially men with thick and heavy upper jaws, a crescent under the eyes cannot be seen.

(2) An antrum which has previously been operated on may remain dark on transillumination.

(3) Where a large antral polypus occupies the antral cavity the latter will be hyperclear to transillumination but dark to a radiogram.

Radiographic examination is most valuable since, if all the sinuses are clear, sinusitis can be definitely excluded.

In certain individuals a severe cold always means involvement of the antra so that the latter, though transparent between attacks, become temporarily opaque to transillumination and radiogram. In others a series of acute attacks has produced a chronic sinusitis. Again, a patient may have a chronic antritis shown only by post-nasal catarrh in the mornings, or an inflammation of the frontal sinus, of which the only signs are periodic attacks of frontal neuralgia and some nasal catarrh. If such patients contract an acute nasal infection, the already degenerated and polypoid mucous membrane of the cavity previously affected cannot easily recover, and operation on an acute on chronic antritis or ethmoiditis is not unattended by danger; again, in frontal cases, osteomyelitis of the frontal bone may supervene, the prognosis being very bad.

It may be taken almost as an axiom that a patient ill with a heavy head cold and with unilateral pain in the face, temple, or brow has an extension of the inflammation of the mucous membrane of the nasal cavities into one or other nasal accessory sinuses. Probably in any severe nasal infection, the mucous membrane of the sinuses is involved, since they are all continuous in their mucous lining and communicate with the nose. It does not follow because the mucous membrane of a sinus shares in the congestion and hypersecretion of the nasal mucous membrane that surgery is indicated; in fact, in most cases, especially when the maxillary antra and ethmoidal cells are involved, medical treatment will be effective, the inflammation will resolve, and the cavity return to the normal. The exception to this is (1) when the natural opening of the sinus becomes so blocked that the cavity cannot drain, retained muco-purulent secretion becomes purulent, and the lining membrane of the cavity becomes so damaged that it cannot recover without artificial drainage; (2) when signs of general toxæmia or septicæmia are urgent indications for the drainage of the septic focus; (3) when the acute condition does not clear up but becomes subacute or chronic.

The maxillary antrum may be infected from a tooth, usually the first or second molar or the second bicuspid; the canine rarely or never infects the cavity. The infection occurs from infection of the tooth socket or from an apical root abscess. The abscess may burst directly through the antral mucous membrane or the infection may extend through the membrane without its rupture. It often follows or is ascribed to the removal of a tooth and this is not surprising, since a tooth may be removed because of an apical abscess, when infection of the antrum has already taken place, or the removal may leave a fistula into the cavity. Not infrequently there is no bony covering between the tooth root and the cavity, the apex being covered only by mucous membrane, which may be torn during extraction, leaving a communication between the septic alveolus and the antrum.

If an acute antritis has a dental origin the proper procedure is to remove the tooth. If a communication with the antrum is established by this means it is justifiable to wash out the cavity through the fistula once or twice, but the fistula should then be allowed to close, routine treatment of the acute antritis being carried out. The patient should not be encouraged to force lotion from the mouth into the antrum. The archaic treatment of acute antritis by removing a sound tooth and then inserting a screw plug or tube so that the fistula could be kept open and the antrum washed out through it, is now happily a thing of the past. Such a procedure allows of continued reinfection from the mouth, and frequently converts an acute antritis, which would probably clear up, into a chronic condition.

General and Local Measures.

The patient should be put to bed, the head being propped with several pillows. The bowels should be kept well open and ordinary medicinal treatment given if there is pyrexia. A steam inhalation should be given four-hourly, the steam being inhaled through the nose and exhaled through the mouth.

The simplest method is to use a quart jug half full of boiling water; a bath towel is placed over the head and jug and the patient inhales as long as the steam rises, usually about five minutes. As a basis Friar's balsam is a useful inhalant,

strength ʒ i. ad. O i. boiling water. To this may be added a little menthol or pinol.

In cases of antral infection, after the inhalation the patient should "posture"—i.e., lie with the head hanging over the side of the bed on the opposite side to the sinusitis—and then sit up, close the nostril on the sound side, and try gently to blow out the secretion from the other. The nose should not be blown with a handkerchief, nor should it be blown violently, especially if the turbinals are congested and there is nasal obstruction, for pus may be blown up the Eustachian tube and infect the ear.

In between the four-hourly steam inhalations the patient should use a fine nasal nebuliser containing the following or similar prescription:—

Menthol gr. xv., cocaine gr. iv., glycerine ʒ iii.
Tr. benzoin simplex ad. ʒ i.

If the vestibule of the nose becomes dry or cracked sterilised vaseline or cold cream may be applied.

Treatment should be continued until the secretion drains away and there are no pressure pains in face or forehead. If the secretion does not drain well, owing to obstruction of the osteum maxillare or infundibulum, relief is often obtained by the following procedure:—

A pledget of cotton-wool is soaked in 10 per cent. cocaine and then squeezed so that it is only damp. It is then placed between the middle turbinal and the septum, so as to shrink the latter. This pledget is removed and a second one placed under the middle turbinal so as to shrink up and open the outlet from the antrum, frontal sinus, and ethmoidal cells.

After cocainisation, steam inhalation and, in the case of antral infection, "posturing" should be employed. If the antrum does not drain despite these methods, puncture through the inferior meatus, together with lavage, may be used. As a solution for this purpose an antiseptic and alkaline lotion, such as glyc. thymol co., B.P.C., should be used to which has been added 1 drachm of tr. iodi. to one pint of the lotion. Placing a hot box (i.e., one arranged with electric bulbs on the principle of the ordinary heat bath) over the head may promote draining and relieve pain. Artificial sunlight has also given good results. These measures may be combined with autogenous vaccines, except in the acute stage, when a serum is preferable, together with adequate drainage.

Cocainisation, followed by steam inhalations, should be employed in all cases of acute sinusitis. Posturing is particularly useful in the case of the antrum. It must be remembered that in these acute cases there is often an acute polysinusitis—that is to say, the anterior ethmoidal cells, frontal sinus, and antrum may be also involved.

Precautions in Operation.

In acute cases where operation is indicated it should be limited to free drainage of the affected sinuses, with as little traumatism or disturbance to the tissues as possible. To open up new surfaces may allow a fresh inlet to infection and produce septicæmia.

In acute antritis the cavity should be opened for drainage if necessary, but the Caldwell-Luc operation should not be performed. In frontal sinusitis the anterior end of the middle turbinal should be removed, the infundibulum enlarged, and the sinus washed out. If this is not sufficient it must be opened and drained in the supra-orbital region. In ethmoidal sinusitis there may be rapid necrosis and disorganisation of the cells; safety again lies in free drainage, the necrosed tissue being rapidly but gently curetted.

It is rare to find the sphenoidal sinus attacked in acute cases, but if it is, the ethmoid will probably be involved too, when access should be obtained by removal of a portion of the middle turbinal, the opening of the sinus enlarged, and the cavity washed out.

Conclusion.

In genuine acute attacks of sinusitis obtain drainage by medical means if possible; if not, simple surgical drainage should not be delayed. In chronic cases a radical operation should be performed during a period of quiescence, free drainage being given and any hopelessly degenerated mucous membrane removed.

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Special Articles.

NOTES ON THE MOTOR SHOW AT OLYMPIA.

THIS year the Motor Show was distinguished by lower prices and better cars. Four-wheel brakes, low-pressure tyres, shock-absorbers, and the cellulose finish are general. The standard of value is so high and such pains are taken over equipment and finish, especially of the covered cars, that it is not a little disappointing to find the same minor faults of design perpetuated by makers of the greatest experience in cars which are otherwise first class. The simultaneous demand for four-door saloons and right-hand control has resulted on car after car in the anomaly of a driver's door by which no driver, however agile, could possibly leave the car. The doctor should be extremely careful to see that the car he chooses has a driving position in which he is certain of remaining comfortable all day and in which he can reach the controls without leaning forward. Some of the best-known models leave very much to be desired here. On one, in particular, the right-hand gear-lever is so arranged that the handle would be inaccessible if the driver had a stiff knee or were wearing a skirt. Several hand-brake levers are so close to the body-work that the driver cannot put his hand round them. These faults outweigh any number of silk window-blinds, antique leather cushions, and electric cigar-lighters.

The 1926 show will be remembered by two features—the "small sixes" and the £100 cars.

£100 Cars.

There were two £100 cars at Olympia and a third, the Lafitte, at the Paris Salon. The last is driven by a three-cylinder radial air-cooled engine, and is hardly a car for the doctor. Of the two British attempts to market a car at this figure one is the Waverley, made by the well-known makers of that name, and the other is the Gillett, made by the Ensign Motor Co. The Waverley is very low and not very attractive in appearance; its engine is an opposed water-cooled twin resembling that of the Jowett and placed behind the back wheels, one of which it drives through a G.W.K.-type friction gear. The car is wound up at the tail.

The Gillett has a self-starter, a speedometer, balloon tyres, and all reasonable equipment, and follows orthodox car practice throughout. It has ample leg-room for two and a boot for luggage or two occasional passengers; its overhead-valve engine will propel it at 30 m.p.h. on middle gear and 50 on top; its steering-lock is ample and its four-wheel brakes as effective as those of a large car. It will not, however, be ready before April. It deserves to succeed, and may yet solve the car problem for many indigent practitioners.

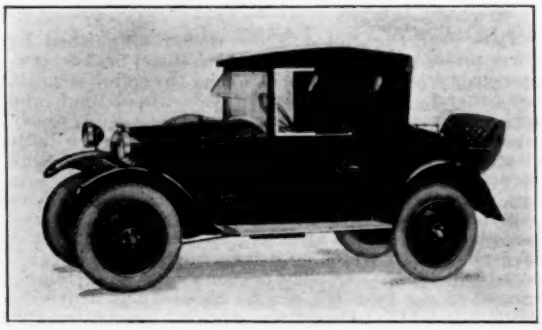
Covered Cars for the £200 Purse.

The 7/12 Peugeot cabriolet (Fig. 1) is one of a type of small coupés common in France, but unknown (with the doubtful exception of the Austin 7) in England. Its close-fitting hood and sliding windows give that positive protection that no all-weather equipment can. It is neat-looking, and would suit a modest town practitioner very well, but its low gear ratio would make it tiresome on a long country round. It has a single dickey with a smart luggage-grid on the trap-door, and its price, £165, includes all the usual modern equipment and a cellulose finish.

The 7 h.p. Jowett four-door saloon always seems an impossibly huge body for so tiny a frame, but the car appears to do the work. At £185 it is a good bargain. The rear passengers have a surprising amount of leg-room, but the roof is a little low. Its chief advantages is its £7 tax and its low running costs. Another £10, however, will secure the Morris-Cowley saloon at £195, and many doctors will consider the extra annual cost well repaid by the greater reserve of power latent

in this 1560 c.c. engine. Morris Motors have stolen a march on their rivals by producing a full saloon at less than £200, and a well-finished and well-made one at that.

FIG. 1.

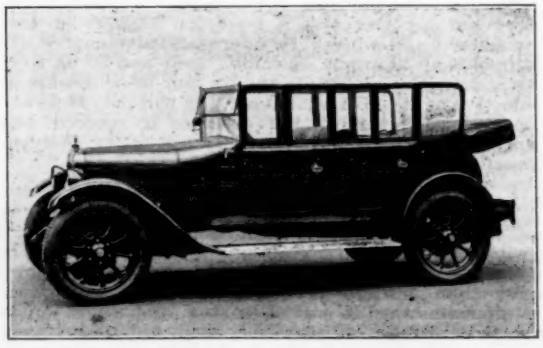


7/12 Peugeot cabriolet.

Up to £300.

There is always a large group of practitioners who, having run a cheaper car for some years, feel that at last they can afford a little more. It is these who really get the fun out of a show, as they have a field of choice at least five times as wide as that of their friends who only wish to spend £200, and they know that even if they were spending £1000 they could only get a bigger car, not one better made or more luxuriously fitted and probably not even a faster one. The first competitors for their notice are, of course, Morris-Oxford, Clyno, and Citroën, with saloons at £265, £250, and £240 respectively. The coachwork of the Citroën is not so well finished, and for most people the choice will remain between the Morris-Oxford 14/28 (which is really only a 12) and the Clyno 12/28 (the engine of which is smaller even than that of the Morris-Cowley). The equipment of both is prodigal and the choice is really between 300 c.c. of engine capacity and £15. Coupés are a shade cheaper than saloons. Those who are prepared to pay more than £250 for a really fine open car should consider the Austin Clifton tourer at £275. In Fig. 2 it

FIG. 2.



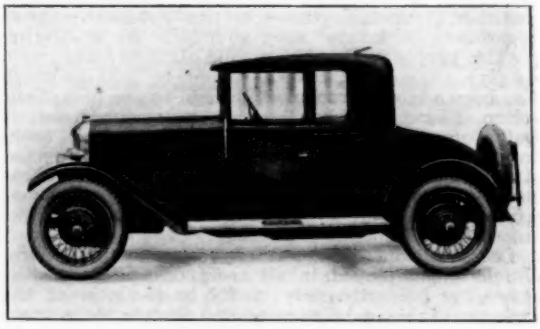
Austin Twelve "Clifton" Tourer.

is shown with screens up. A compromise in build is the Lea-Francis 12 h.p. semi-coupé at £295. "Semi" implies a coupé hood, but side-screens instead of railway-carriage windows; the protection is ample. This car has four speeds and an overhead-valve engine, and is thoroughly good in every way. The Rover 9/20 has been immensely improved by having semi-elliptic springs fitted in front to take the strain of the front-wheel braking. The engine has an exceptional performance for its size. For the general practitioner the detachable head coupé model at £235 is almost ideal, for it is a closed car which can be changed into an open two-seater in a few minutes by taking off the head and substituting an ordinary hood. The permanent coach-built coupé costs £285. The small Fiat (tax £8) is one of the most interesting of this year's cars. Its engine is just under a litre in size, but is highly efficient. It was originally called a 7, but is now advertised as 9 to do justice to its roominess and power. It has exceptionally good body-work, and the coupé at £265 is likely to attract many doctors away from the British market. The Bean 12 two-seater at £275 and "short 14" two-seater at £295 both have four speeds and roomy bodies and can be thoroughly recommended.

Up to £400.

One of the most attractive doctors' cars in the show, if not the most attractive, was the 12/40 Riley Wentworth coupé (Fig. 3). Its outstanding feature is that behind the driving seats is a space large enough for two people's luggage or two occasional seats. Two more passengers can ride in the dickey. The driving position is admirable, and either central or right-hand control can be supplied. The rear window is very large and there is an efficient roof-ventilator. The price is £385 only. The Windsor 10/15 is not so well known as most English cars, for the reason that it is made in comparatively small quantities, but it bears the marks of very careful workmanship and is superior in finish

FIG. 3.



12/40 Riley Wentworth coupé.

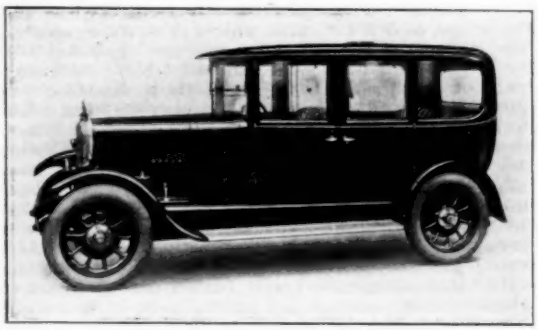
to many much more expensive makes. The coupé and saloon are both sold at £395 and there is no better value in the show. The driving position is good. Another splendid car of this kind is the Galloway 12/30, a small Arrol-Johnston. The fixed-head coupé at £375 has, besides its comfortable driving position, several individual features, such as room for a bag behind the driving seats and a wind-screen with small inclined side-panels, a construction which completely eliminates the "blind-spot" that spoils so many covered cars. It is impossible to leave this class without mentioning the Austin 12 Windsor saloon at £350. Besides being one of the handsomest and most dignified cars of its size in the show, it is equipped on a scale which must cut the makers' profit down almost to nothing. The Standard Motor Co. have once again produced a six-cylinder car, and, good as their pre-war one was, the newcomer will certainly be much better. It has an exceptionally graceful straight line from the shoulder of the radiator to the scuttle, and thence to the rear. The "Corley" coupé is finished in fawn, crimson, or blue cellulose, with leather to match, at £385, and a similar 14 h.p. 4-cylinder coupé costs £315.

Over £400.

Generally speaking, money expended in excess of this sum will buy more power but not higher quality, but there are a few cars in which a high first cost really represents unusual accuracy in mating parts and cutting gears. One of these is the Alvis, an 11·9

which is far and away better than everything of its size but the Aston-Martin. The 2/3-seater with the semi-coupé head at £485 is the model perhaps most likely to appeal to medical men, while the saloon (Fig. 4) is a beautiful car. The equipment is everything that could be desired. The Wolseley Company are showing a new 16/45 six-cylinder model of two litres capacity which many experts say is the best car they have ever built. Its engine is vibrationless up to 60 m.p.h., and the seating arrangements are

FIG. 4.



12/50 Alvis saloon.

very roomy. The sides are high and the side-curtains make a complete weatherproof fit. At £450 for the two- or four-seater it is a remarkable bargain. The 18 Armstrong Siddeley, which has now been a favourite for some years, represents a successful attempt to make an English medium-powered six-cylinder car at the price of an American one, but much better. The "Harlech" coupé at £540 accommodates three people abreast, one definite advantage of the larger car, and provides locker space behind the adjustable seat-back and a double dickey. The Ansaldo is an Italian car which has gained considerable popularity in this country. Four models are made, including a two-litre six-cylinder.

More Expensive Cars.

In the frankly expensive class there was a 14/40 Vauxhall on Mann Egerton's stand which would do credit to any specialist. The body is a fixed "saloon coupé" corresponding rather in arrangement to the "occasional four" of the humbler makes, with two tip-up seats behind the main bank and a large open space for luggage, also a double dickey. The finish is dark green cellulose, with upholstery to match.

American Cars.

The Overland Whippet is American only in type, for it is manufactured in Canada and designed almost like an English two-litre car. The five-seater touring car at £198 and the saloon and fixed-head three-seater coupé at £234 each, fully equipped, are excellent value. The coupé has an anti-glare visor of green glass. Studebakers have put on the market what is really rather a wonderful car, the Erskine 16/40 h.p. six-cylinder. The capacity is about two litres and a third. The makers claim to have designed and built a car to an "ideal" specification embodying the composite demands of motorists of all countries. The unsightly detachable rims and the somewhat meretricious appearance of even the good American car are refreshingly absent, and the general appearance is very good indeed. The price is absurdly small—£295 for a really well-built saloon.

The Chrysler is a most satisfactory American car of the better class. Three models are made, all six-cylinders, the "60," the "70," and the "80." The figures relate loosely to brake horse-power and maximum speed. The "60" touring-car costs £380 and the coupé £425. The R.A.C. rating is 21.6 h.p.

Accessories.

Judging by the equipment now regarded as indispensable to the modern car and included in its price, one might be excused for asking how the retail accessory dealer manages to make a living. The galleries did not indicate, however, that his prosperity is seriously impaired. There are still some useful accessories that are not standard equipment. For instance, the student of the catalogues might search through many before he found mention of a fire-extinguisher, and yet a chance petrol fire would reduce the glory of the most magnificent saloon to wreckage in 30 seconds. A Pyrene is a complete fire insurance policy in itself and costs £3 3*s*. No car should be without it. Another quite indispensable accessory that is practically never given with the car is a Schrader tyre gauge, price 7*s*. 4*d*.

The jacks and pumps supplied with many cars are not all they might be, and the owner-driver will often prefer to make his own choice. For light cars the "Atlantic" lazy-tongs jack is pleasant to work with, as it lifts very quickly, and the "Quiftlick" ratchet jack is a joy. The doctor should prefer a jack that lifts with an up-and-down movement before one that screws. Hydraulic jacks are expensive but pleasant; Ross Courtneys' "Little Jackie" at 50*s*. is a good example. Foot-pumps can be used with less strain than hand-pumps. The Dunlop at £2 2*s*. is satisfactory; one of the best is the "Mac-Pneu," which has two cylinders and two pedals and is worked by "marking time" with both feet. Lodge this year showed a still larger range of sparking plugs, including models especially designed for Morris, Ford, and Daimler, a priming plug through which petrol may be injected in cold weather, and a miniature plug.

MEDICINE AND THE LAW.

Successful Claim for Fees.

"THE moderation of most doctors with regard to fees always surprises me," observed Mr. Justice Roche last week during the hearing of a surgeon's claim in respect of professional services. The plaintiff, Mr. E. J. Deck, of 55, Welbeck-street, was suing Captain A. C. G. Smith, of the Royal Automobile Club, for £65, representing treatment over many months. Sir Alfred Fripp, a witness for the plaintiff, approved the treatment administered and stated that he considered the fees charged were very reasonable. It was at this point that the learned judge interposed the observation already quoted. The case contained no point of law. There was no question that the services had been rendered. Captain Smith, suffering from swellings in the neck, consulted Mr. Deck who administered treatment by ultra-violet rays. The defendant also attended a dentist who advised the extraction of his teeth, the dentist stating in court that his fees also remained unpaid. Eight months after his first consultation with Mr. Deck Captain Smith went to another surgeon and was operated upon. He took the view that his previous treatment had been wrong and, in answer to the plaintiff's claim for his fees, he set up the defence that the plaintiff had been negligent in the diagnosis and treatment of the case; he also counter-claimed for damages on the ground of this alleged negligence. The jury found for the plaintiff and judgment was given for Mr. Deck for the full sum claimed with costs on the High Court scale, as well as on the counter-claim.

Woman Juror's Illness.

Since June 1st, when Section 15 of the Criminal Justice Act of 1925 came into force, the death or illness of a juryman in a criminal trial is no longer a cause for breaking off the hearing and starting afresh with a new jury. At Chester Assizes last week a woman juror showed signs of faintness during a manslaughter trial. The judge deemed her incapable of continuing to act, and the trial proceeded without

her. This can be done under the Act provided that assent is given in writing by or on behalf of both the prosecution and the accused, and provided that the number of remaining jurors does not fall below ten. The Sex Disqualification Act, which first made women competent and liable for jury service, allowed a woman to apply to be exempted from serving in respect of any case "by reason of the nature of the evidence to be given or of the issues to be tried." Exemption is freely granted under this provision. The Act also allowed women to be excused attendance as jurors if they were "for medical reasons unfit to attend." This concession is amplified by the various rules governing procedure in criminal cases, in the High Court and in the County Court. The summons to a woman juror must, under these three sets of rules, notify her that she may apply for exemption from attendance "on account of pregnancy or other feminine condition or ailment," if the application is made within a fixed time-limit. The rules provide that the application may be substantiated by medical certificate or otherwise.

What is "Wine."

Mention was made last week of the conviction of a Brighton chemist for selling "Wincarnis with quinine" without being the holder of a justices' licence to retail intoxicating liquor. The magistrates had decided that the liquid was wine and the High Court declined to interfere. The law does not attempt to define wine on any standardised basis of chemical analysis. Acts of Parliament, of course, look upon intoxicating liquor from many different points of view. Thus an Inland Revenue Act of 1880 says "wine" includes sweets, and "sweets" include "made wines, mead, and metheglin." For the purpose of the liquor licences duties under a Finance Act of 1910, "wine" means wine imported into Great Britain and Ireland, while a Finance Act of 1920 mentions that "wine" includes lees of wine. These scattered interpretations bring us no nearer to knowing what constitutes wine for the general purposes of the law. The Refreshment Houses Act of 1860 essays a rule-of-thumb definition of spirits—"any fermented liquor containing a greater proportion than 40 per centum of proof spirit"—and in the same section it is laid down that liquor sold or offered for sale "as being foreign wine or under the name by which any foreign wine is usually designated or sold" shall be deemed foreign wine as against the seller. Under this latter provision a person who was licensed only to sell sweets and who, being asked for a bottle of the best sherry, supplied a bottle labelled "Best pale sherry, British," was held properly convicted of selling foreign wine. Sherry, evidently, means sherry from a foreign country where recognised sherry is produced. Parliament has given a similarly restricted meaning to port and madeira. The Anglo-Portuguese Commercial Treaties Acts of 1914 and 1916 declare these wines to be the produce respectively of Portugal and the Island of Madeira, and they penalise as a false trade description the application of the terms "port" or "madeira" to any other liquid, although those British Dominions overseas which are developing wine-making industries are known to deprecate the limitation.

Non-alcoholic Wine.

Does wine necessarily mean something alcoholic? Apparently not. The Public Health (Preservatives in Foods, &c.) Regulations, made last year, schedule a list of articles which may contain a limited quantity of preservative, and they allow a small proportion of benzoic acid to be added to "non-alcoholic wines." This expression was quoted in a prosecution at Salford last August when a confectioner was summoned under the Sale of Food and Drugs Acts for selling a "meat and malt wine" not of the nature, substance, and quality demanded. In the Wincarnis case at Brighton the defendant owed his conviction to the fact that the liquor contained too much alcohol; in the Salford case it was complained that the meat and malt wine contained no alcohol at all. The city analyst certified that a sample showed 81·2 per cent. of water, 16·4 per cent. of sugars, and 2·4 per cent. of extractive matters. In this last item was 0·06 per cent. of phosphoric anhydride, indicating traces of a mixture of meat and malt extract. It was stated that a genuine meat and malt wine should have at least 5 per cent. of a mixture of equal parts of meat and malt extract with a wine basis. The sample was entirely deficient of wine; it was sold for 4*s.* 6*d.* and a witness estimated the total value at less than 6*d.*, bottle and all. The bottle was labelled "non-alcoholic," but the prosecution contended that wine means the fermented juice of the grape, and is not wine unless it contains alcohol. The defence was that there was no legal standard for a meat and malt wine, and that the prosecution had not established that the bottle in question was not a meat and malt wine, however inferior. The defence also relied on the use of the words "non-alcoholic wines" in official publications, as showing that wine need not contain alcohol. The stipendiary magistrate seemed to think the public had been imposed upon but felt obliged to acquit the confectioner in view of the legal points raised. Those who have to study the Sale of Food and Drugs Acts would probably agree that it is high time that this series of enactments, going back over 50 years in which neither science nor public opinion has stood still, might well be revised in the light of modern requirements. Sir Mackenzie Chalmers, a former Parliamentary counsel, has placed it on record that he once suggested to a departmental official that these statutes should be consolidated and reduced into one orderly document. "What is the necessity?" was the reply; "we know all about the Acts within the department, and the public finds out in the police-court!"

Enforced Resignation from Hospital Staff.

On Oct. 27th a civil action was tried before Mr. Justice Branson in Liverpool, in which the plaintiff, Dr. Isaac Harris, sued the ex-chairman of the lay committee of the Northern Hospital. Dr. Harris first became connected with the Northern Hospital in 1913 as a clinical assistant on the medical side. His interests lay chiefly in diseases of the heart, and when a cardiograph was installed he was put in charge of it, and in 1919 was formally recognised as head of the cardiographic department. Apparently there was friction between Dr. Harris and other members of the hospital staff, culminating in a refusal on their part to allow Dr. Harris to examine certain patients and the refusal of Dr. Harris to take cardiograms and issue reports without such examination. About this time Dr. Harris was appointed hon. physician to the newly-established heart hospital, and it was suggested that it was inadvisable that he should hold both positions. Finally at the annual meeting in this year, when the names of the medical staff were submitted for re-election, the name of Dr. Harris was omitted from the list. His post being in this way rendered vacant another medical officer was subsequently appointed. Dr. Harris maintains that he asked for a committee to inquire into the offences he was alleged to have committed, but that no notice was taken of his request. During the whole forenoon the facts were gone into before the court, but finally in the afternoon it was announced that the matter had been arranged. The judge in court made it evident that for him two points stood out above the others: first, that whereas it was part of his duty to take cardiograms, Dr. Harris had refused to do so unless permitted also to make a clinical examination of the patient; secondly, that Dr. Harris "could not regard it as an understood condition that his appointment should be permanent, when the letter of appointment laid down expressly that it was subject to annual confirmation." A statement was made on behalf of the committee of the Northern Hospital indicating that no suggestion whatever was being made against the capacity, ability, and integrity of Dr. Harris, who had done great and

valuable work for the hospital, which was cordially appreciated by the committee. They also appreciated that the doctor's grievance really was that his case had not been inquired into, though in their view it had been fully and anxiously investigated.

Diseases of Animals Acts: Ignorance of the Law.

The difficulty sometimes experienced by the public in finding out the law was illustrated by some cases under the Diseases of Animals Acts reported in the *Times* during October. An Isle of Wight farmer was summoned for breaking an Importation of Animals Act Regulation by failing to isolate for six days a pedigree bull brought from the Channel Islands. The clerk of the justices protested that he himself and others who had studied the law all their lives were not informed of such Regulations but had to go and look at the notices posted up. These Regulations came in such masses, he said, that those concerned could not make themselves acquainted with them fast enough. The chairman of the magistrates remarked that it was very necessary that the Regulations should be observed and he fined the farmer 10*s.* as a warning to others. Later in the month another farmer was summoned at the Highgate police-court for failing to give notice with all practical speed of the existence of foot-and-mouth disease on his farm at Whetstone. The farmer said he had no knowledge of the disease; he thought his cows were lame from standing in tarred water which had flowed from the road on to his field. He was fined £25, with a suggestion from the bench that there should be no deduction from the compensation to be paid him for the cows. The outbreak was said to be due to the presence on the farm of straw used for packing bananas imported from the Canary Islands. A greengrocer who had removed the straw from his premises in Finchley to the farm at Whetstone was summoned for breach of the Minister of Agriculture's Order in this respect. The defendant pleaded ignorance of the Order; the magistrate admitted that he himself was unaware of it. The defendant was fined 5*s.*, the prosecution being treated as having been instituted for the sake of giving publicity to the Order. Critics of the Ministry of Agriculture's Regulations and Orders, which admittedly are issued suddenly and in large numbers whenever outbreaks of cattle disease are reported, must remember that it is essential that the Ministry should make swift use of its powers of issuing Orders. The Ministry, as a matter of fact, sets other departments a good example in the efforts it makes to acquaint all concerned. If farmers want to eliminate cattle disease, they must display the necessary interest and vigilance.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Cardiac Hormone.

Prof. Ludwig Haberlandt has recently given the Vienna Medical Society an interesting account of some experiments on the heart which, he claims, have established the existence of a cardiac hormone. The fact that in certain animals (e.g., frogs) the heart continues to beat automatically for some time after removal from the body has not hitherto been satisfactorily explained. Work on the subject has been done by Engelmann, who suggested that the heart-muscle itself must produce substances which regulate and stimulate contraction, but was unable to demonstrate them, and by Löwi who succeeded in isolating from the heart a substance which had some action on the muscle itself. In his own experiments Prof. Haberlandt placed hearts, freshly taken from frogs, in warm saline solution, where they continued to beat for some time. He then removed part of the sinus and placed it also in salt solution, where it beat in the same way. Here he discovered the remarkable fact that the beating fragment imparted its property to the solution. Hearts which had been removed up to three days previously and were apparently quite dead were found to recover on being put in the solution in which the sinus had been beating. They began to beat again. In other words, the fragment of the heart had given off into the saline solution a substance which irritated and resuscitated apparently paralysed heart-muscle. Numerous control experiments, it is said, have established the fact that in the cardiac sinus, as well as in the floor of the ventricle, a hormone is formed that is the cause of the cardiac contractions. It produces these contractions in non-beating hearts; it increases the rate of those which are slowly beating; it strengthens the force of cardiac movement. Prof. Haberlandt calls this hormone "sinus hormone." It is soluble in physiological saline and alcohol, but insoluble in ether, and it is very resistant to heat and cold. This shows that it is not an albuminoid body. It is not identical with adrenalin, for it does not contract the blood-vessels, its action being rather to dilate them. Prof. Haberlandt hopes that he will shortly find a practical method of obtaining the hormone from the hearts of slaughtered animals in quantities sufficient for its therapeutic use in medicine. As was pointed out in the discussion following his demonstration, the isolated hormone would be the physiological cardiotonic in a large variety of pathological conditions.

A New Fattening Cure.

At the same meeting Dr. F. Depisch showed several patients whose weight, by a simple method, has been rapidly increased after debilitating conditions. It is similar to the method of Falta, who injected insulin in order to increase appetite, but in this new treatment the insulin of the patient's own body is, so to speak, mobilised. In a non-diabetic person a dose of 100 g. of glucose, dissolved in 1000 c.cm. of water, is followed by a remarkable drop of the blood-sugar after an initial rise. Three to four hours after the ingestion of the glucose the drop is at its lowest, the blood-sugar falling below its initial value. The rapidity and amount of the drop is an index of the irritability and activity of the tissues producing insulin. Normal patients show at this period a pronounced hunger, and even distinct symptoms of hypoglycæmia, such as tremor, perspiration, and palpitation. Dr. Depisch finds that people with poor appetite and low weight, when given a sugar breakfast as described above, develop the hunger of a wolf, and are able to take a surprising amount of ordinary food about four hours after the ingestion of their sugar. Ordinary sugar is given instead of glucose and it is dissolved in weak tea with lemon. The increased hunger is due to an excessive production of insulin, stimulated by the large dose of sugar. In some instances the increase of hunger does not appear before the third or fourth day of the experiment—i.e., not until the organ has been trained to overwork. The increased output of insulin and the improved appetite continue for some time after the sugar breakfast has been stopped, and the patients thus easily and rapidly gain in weight. In certain patients the method is not successful; some of them refuse to take the large quantities of sugar, and in others the insulin-producing tissues are incapable of an adequate response, so that no hypoglycæmia occurs. Dr. Depisch regards as unsuitable for the treatment those cases with pyrexia, toxic conditions, or gastric irritations. His experiments go some way towards justifying the opinion of those who believe that the ingestion of carbohydrate in diabetes sometimes improves the activity of the insular organ.

The Treatment of Quinsy.

The very frequent occurrence of peritonsillar abscess as a complication in the present epidemic of "influenza" has prompted the Vienna Medical College to devote a meeting to the subject, at which Prof. O. Mayer and Prof. O. Hirsch laid down the following lines of treatment. The site of the abscess decides the method of attack. Those which originate from the upper pole of the tonsil, making the anterior

pillar bulge forward, should be opened at the mid-point of a line drawn from the base of the uvula to the last molar tooth. The incision should be at least three-quarters of an inch deep, for the mucous membrane is very œdematous, and should reach about half an inch outside and below the line mentioned. Once or twice a day the wound should be opened a little with the forceps to let the pus escape, but no other drainage is required. Care must be taken in lancing the abscess not to go too far outwards—this endangers large arteries—nor to go into the tonsil itself, nor to risk damage to the tonsillar artery by going too far inwards. Where there is severe hæmorrhage from such arteries tonsillectomy should be performed at once. Abscesses having their origin at the lower pole of the tonsil generally develop laterally or backwards. Backward extension causes bulging of the posterior pillar, and the abscess can be opened there, whilst lateral extension of the inflammation produces very severe symptoms—pain, impossibility of swallowing, œdema of the tonsillar region, and fixation of the lower jaw. The abscess should be opened as soon as possible at the point of incision described above. If no pus is found there tonsillectomy is indicated, for otherwise there is a risk of a dangerous deep phlegmon of the neck or mediastinitis. If tonsillectomy is impossible or if it is already too late an incision should be made along the anterior border of the sternomastoid muscle, going down to the fascia ensheathing the great blood-vessels, for this is the route along which the abscess goes to the mediastinum. Sufficient drainage is very important after opening the abscess here. Hæmorrhage, even of a minor degree, where there is a peritonsillar abscess, should raise a suspicion that there has been erosion of a blood-vessel; compression or even ligature of the carotid artery (external or common) may be needed. In lancing a quinsy ethyl chloride or ether may be given as an anæsthetic; local anæsthesia is of no use. If abscess-formation is certain it is a mistake to open too early, for if the incision is made before the abscess has truly formed the patient suffers more than before.

Fewer Medical Students.

The entries for the winter term at the University show a distinct drop in the number of medical students matriculating, as well as a general decrease of undergraduates. This is due partly to the unfortunate economic situation of the medical profession, and partly to the fact that many students from Eastern countries (Poland, Roumania, Serbia, Greece) are going to other universities, where there is no restriction placed on their dissection work and where the laboratories and other institutes offer them free experience. First-year foreign students especially are apt to find difficulties in their studies here.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee 58 cases were considered, and £784 9*s*. voted to 52 applicants. The following is a summary of some of the cases relieved:—

Widow, aged 59, of M.D. 1889 who practised in Lancashire and died in 1914. Three children. One son, aged 26, has been in a mental hospital since July, 1925. Youngest daughter, aged 22, is a probationer in a hospital, and the applicant is dependent on eldest, aged 23, who earns £2 a week as a clerk. Up to three years ago applicant maintained herself. Voted £26 in 12 monthly instalments.

M.D. Glasg. 1886, aged 68 who practised in Scotland and retired on account of ill-health and deafness. Widower. Four children. Now lives with son, who is a minister with a small stipend. Daughter only earns £75 a year as a secretary. Asks for a grant to enable him to contribute towards his own board and of his personal attendant. Voted £40 in 12 monthly instalments.

Wife, aged 55, of L.S.A. 1900 who practised in the south, and owing to general paralysis is now in hospital. Applicant's five step-children and her own daughter have allowed her about £40 since January. Rent £9 12*s*. Asks for cost of husband's maintenance. Voted £30 in 6 monthly instalments.

Widow, aged 58, of L.R.C.P.I. 1898 who practised in Kent and died in 1904. Only income is rent from a house £65 per annum net. Has one room at a cost of £31 4*s*. including coal. No children. Insufficient income to cover necessities and clothing. Voted £10 in 2 instalments and clothing.

Subscriptions may be sent to the Treasurer, Sir Charters Symonds, K.B.E., 11, Chandos-street, Cavendish-square, W.1.

Public Health Services.

HOME TREATMENT OF MILD SCARLATINA.

A SHORT while ago we announced a change of policy in the allocation of fever beds at the hospitals of the Metropolitan Asylums Board, the effect of which will be to make the home conditions the ruling factor in the decision so soon as 75 per cent. of the available hospital beds are occupied. The borough medical officer of health will then select at his discretion from the notified cases of scarlatina or measles such as are likely to benefit most from hospital treatment The decision was taken on a report as yet unpublished presented to the Board on Feb. 20th last by Dr. F. Foord Caiger, who considered that the only valid objections which could be urged against giving preferential treatment to measles over scarlet fever were, first, that many employers, and most school authorities, declined to allow their employees to come to work or, in the case of children, to attend school, so long as a case of scarlet fever was present in the home. This he felt to be undoubtedly a difficulty, and one which has to be faced. In the better-class homes, where the patient can be isolated, there is not much risk of infection being conveyed by a contact, particularly if an adult, so long as care is exercised in respect of such matters as wearing an overall, washing of hands, and the adoption of ordinary precautions. A leaflet might, he thought, be furnished by the medical officer of health, and delivered at the house by the sanitary inspector on his first visit setting forth the precautions to be observed and, if satisfied that such were being taken, a certificate to that effect might be given by the medical attendant, to be handed by the parent or other person concerned to the employer. Some employers would, no doubt, be unwilling to accept this assurance, but others would, and their number might be expected to increase as the practice became more extended. Cases where the home conditions were such as to preclude the possibility of isolating the patient, or where a confinement was expected in the household, as also those occurring in tenement houses or institutions, would need special consideration and would justify selection for removal to hospital, as in the case of measles under the present system.

Secondly, it is obvious that, should the number of beds allocated to scarlet fever be insufficient for the isolation of all cases for which removal to hospital were sought, a selection of the cases regarded as suitable for admission would have to be undertaken, and this, it had been urged, would be attended with considerable difficulty. The fact that the public and many medical practitioners, relying on past experience, have come to expect the removal to hospital of every case of scarlet fever on application being made, and that a policy of selection is consequently inadmissible is, however, in Dr. Caiger's opinion, an objection to which but little weight should be attached. New conditions call for new measures, and public opinion would have to be educated accordingly. Selection in the case of scarlet fever should not, he concludes, present the same difficulties as in the case of a disease like measles, where the proportion of cases for which hospital treatment can be provided, compared with the total number of cases for which it is required is so much smaller, and where, owing to the average severity of the disease in the early stage being so much greater, removal to hospital at the earliest possible moment is indicated.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 23RD, 1926.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 126 (last week 132); scarlet fever, 1863; diphtheria, 1150; enteric fever, 60; pneumonia, 763; puerperal fever, 36; puerperal pyrexia, 115; cerebro-spinal fever, 6; acute poliomyelitis, 68; acute polio-encephalitis, 21; encephalitis lethargica, 37; dysentery, 10; ophthalmia neonatorum, 141. There were no cases of cholera, plague, or typhus fever notified

during the week. One case of small-pox was reported from Islington, the remainder from the northern counties. The reported cases of poliomyelitis and polio-encephalitis are still on the increase, the counties reporting more than 3 of the 2 diseases taken together being Kent, 37 (33 from Broadstairs, 2 from Ramsgate, 1 each from the rural districts of Bridge and Milton); Lancaster, 4; Rutland, 5 (Oakham); Warwick, 7; Leicester, 4 (rural districts of Hinckley and Melton Mowbray). Several counties reported isolated cases of polio-encephalitis without poliomyelitis.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 6 (0) from measles, 5 (2) from scarlet fever, 19 (5) from whooping cough, 40 (13) from diphtheria, 159 (33) from diarrhœa and enteritis under 2 years, and 54 (18) from influenza. The figures in parentheses are those for London itself.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the statistics of four county boroughs for 1925:—

Name of county borough.	Estimated mid-year population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.	
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Infant mortality.	Maternal mort. from childbirth.
Leeds	472,900	17·3	12·8	1·27	1·28	2·7	1·4	91	5·5
Birkenhead ..	155,500	20·5	12·1	1·01	1·28	2·6	0·9	92	4·7
Blackburn ..	126,900	14·9	13·9	0·87	1·26	3·3	1·7	98	5·7
Northampton.	93,780	15·6	11·9	1·04	1·49	1·9	1·3	67	6·1

Leeds.

Dr. J. Johnstone Jervis expresses his regret that at the end of five years the tuberculosis scheme is still incomplete. Nearly 200 persons, many of whom are insured, are on the waiting-list for the sanatorium. Either available beds at existing institutions must be increased or an entirely new sanatorium built. The latter, though costing more, is the better proposition. A system of open-air schools is also needed for children of the delicate or pre-tuberculous type. Another matter demanding attention is a comprehensive scheme for dealing with cripples, for which the education and health committees must coöperate. The amalgamation of the public medical services carried on by the two committees has also not yet been consummated.

The Leeds maternity hospital has accommodation for 75 women. It is proposed to increase the beds to 102, and to make great improvements in the administrative facilities. During the year 63 of the pupil midwives trained there entered for the C.M.B. examination and 59 obtained the certificate. The hospital also maintains, by agreement with the corporation, five district midwives, who work under the supervision of the resident medical staff. During 1925 the total births attended through this institution numbered 2355, 844 of which were extern cases. In addition to this about 100 maternity cases were admitted to the beds subsidised by the corporation in Poor-law infirmaries. The total births in the city numbered 8180.

The question of smoke abatement has received attention. The percentage of chimneys emitting more than three minutes per hour of dense smoke was 2·1, as compared with 1·7 in 1924 and 3·3 in 1923. These three years show a great improvement on the records for 1922 and 1921, which were 7·1 and 8·6 respectively. Circular letters were sent to the owners of offices, warehouses, shops, and hotels, asking them to consider the abandonment of raw coal and the adoption of smokeless methods. The West Riding Regional Smoke Abatement Committee has produced a report containing important recommendations to its constituent authorities and to the Government. The recommendations include more systematic observation of chimneys and the adoption of a black smoke limit not exceeding two minutes in the half hour; also a reduction in the price of electricity and the adoption of smokeless methods in new houses wherever possible.

More interest has been taken in the clean milk question. At the end of 1924 the daily sale of graded milk in the city was only 30 gallons. At the end of 1925 the amount had increased to 850 gallons, including 30 gallons of "Certified," 100 of "Grade A (T.-T.)," and 720 of "Grade A" milk. A year or two ago a system of score cards was adopted for the dairy farmers, each farmer being informed of the result. Following this, on Jan. 1st, 1925, a "clean" milk competition, using these score cards, was launched and continued for the whole year. The routine included visits by the veterinary inspector and the cowsheds inspector, who saw the cows milked, &c. The samples taken were tested for visible dirt, keeping properties, the total number of bacteria, and the presence of *Bacillus coli*. 125 of the 130 dairy farms in the city and two outside farms took part in the competition. Thirty of the city farms were found to be producing milk of "Grade A" standard. It is proposed to award first-class certificates to producers obtaining over 75 per cent. total marks, and second-class certificates to those who obtain between 60 and 75 per cent. Only five of the competitors failed to qualify for any certificate. The two corporation farms, which supply "Grade A" milk to the municipal institutions, obtained 90 per cent. of marks. Of the 2039 cows in the city, six were found to have tuberculosis of the udder and five generalised tuberculosis; 9·8 per cent. of the cows were reported to be dirty at the time of the inspection.

Mussels from Millom in Cumberland were found on examination to be sewage tainted and have been excluded from sale. Two small special outbreaks of scarlet fever occurred. One affected 26 persons working at a ready-made clothing factory and arose from a missed case in the person of one of the factory hands. The other outbreak was traced to a milk-supply outside the city. A campaign has been in progress to equip a cancer research laboratory at the university and £75,000 have been already raised for the purpose. In 1924 the corporation agreed to pay the fees of obstetrical consultants called in by general practitioners, but up to now this scheme has only been used 12 times, at a cost of £42 17*s.* 6*d.*

"Housing is still the most serious and urgent of the social problems," although there is renewed activity amongst private house-builders. Of the 960 houses erected by private enterprise, 583 were subsidy houses. Experiments are being made with all-gas and all-electric houses. Dr. Jervis regrets that the house shortage has made progress with schemes for unhealthy areas impossible.

Birkenhead.

Dr. D. Morley Matthieson enumerates several advances in his 1920–25 survey. Thus motor ambulances have replaced horse-drawn; electric light has been installed at the fever hospital; the sanatoriums at Thingwall (now used chiefly for children) and Burntwood (Joint Cheshire) have come into use; the health services have been coördinated with the dual advantage of making the work more interesting to the staff and of allowing the services to be extended without increase of staff. The great lack, however, is suitable central premises instead of the five separate buildings, "mostly inconvenient and unsuitable," at present in use. The corporation subsidise 12 beds for surgical tuberculosis at Leasowe. The children who were discharged after an adequate course of treatment during the years 1920–25 numbered 42, and investigation at the end of 1925 gave the following results:—

Thirty-six cases (including 25 "bones and joints," 5 "abdomen," and 6 "peripheral glands") were cured. In 4 cases (2 bones and joints and 2 peripheral glands) the

disease was not arrested, and in 2 cases (bones and joints) death had occurred.

Up to the autumn of 1922 the V.D. clinic at the borough hospital was conducted by the hospital staff, but since that date it has been carried on by the medical staff of the health department. Every year improvement in methods of diagnosis and treatment have been made and close association kept up with other branches of the public health work. Thus Dr. Mary Deacon, who is in charge of the antenatal clinic, also conducts the sessions at the V.D. clinic at which women and children are treated, and school-children with the later manifestations of congenital syphilis are referred from the school clinics. The most prominent feature of the mental deficiency scheme is the failure to obtain sufficient accommodation in existing institutions for persons who cannot be properly cared for at home. The primary duty of ascertainment has been well carried out in Birkenhead, says Dr. Mathieson, "but ascertainment and classification are of little value unless they are followed by suitable care and control, and, where necessary, segregation." And he goes on to relate the steps which have been taken since early in 1924 and culminated at the close of 1925 by an agreement between the Cheshire County Council and the county borough councils of Birkenhead, Chester, and Wallasey to form a joint committee under the Mental Deficiency Act, 1913, for the purpose of providing an institution to accommodate 500 mental defectives. It is considered that a site near Chester or in the Wirral will be the most convenient.

The antenatal clinic conducted by Dr. Deacon shows a gradual increase of work. During 1925 48 women attended in their first pregnancy and 271 in a subsequent pregnancy. Dr. Deacon is conducting an investigation into the chemical composition of the milk of nursing mothers, which is not yet completed. When the dental scheme for the school-children was put into operation in 1921 it was intended to extend it until it covered the whole school population. Owing to financial reasons no extension has yet been made, with the result that while 6000 of the 24,000 school-children "have in the main clean mouths and sound teeth," 90 per cent. of the remainder have teeth requiring attention, and "large numbers suffer from untreated oral sepsis." Owing to an unusually large number of diphtheria admissions to the hospital and the occurrence of several cases among the staff and of cross-infection in the scarlet fever wards, the "Schick" test was adopted for the staff and for cases of scarlet fever admitted.

Blackburn.

Dr. Oscar M. Holden, who took up his duties in the middle of the year under review, points out that the population of Blackburn reached its zenith in the first decade of the century. At the Census of 1911 it was 133,052 and at the 1921 Census it had dropped to 126,643. The local Census taken on March 14th, 1926, gave a population of 126,497. With this declining or stationary population it is not surprising to learn from the report that housing and overcrowding are less urgent problems than elsewhere. Nevertheless, there is a considerable waiting-list for corporation houses. The problem of houses let in lodgings remains unsolved and there is a growing evil of caravan dwellings. Dr. Holden deplores the fact that the by-laws in force for the former do not give powers to the corporation to enforce annual registration and better cooking facilities. The rents charged are generally exorbitant, and the accommodation, furniture, and bedding very unsatisfactory. There is a growing tendency to use caravans as a substitute for houses. A business is made of buying caravans, placing them on vacant ground, and letting them to tenants at 5*s.* to 10*s.* a week. Frequently there is no proper water-supply or closet accommodation, and the ground around the caravans becomes littered with refuse. But the actual inmates are reported to be "particularly healthy."

The respiratory group of diseases bulks largely in the death returns and Dr. Holden thinks climatic conditions coupled with a dirty atmosphere are largely to blame. Tables are given in the report to show the relative cost of heating rooms by various methods. For continuous heating an open fire with low temperature coke comes out well. There are 183 factory chimneys in the town, 100 of which are provided with smoke-consuming appliances; 190 observations were made during the years, and in 39 black smoke was emitted in excessive quantities. The standard adopted in Blackburn varies from four minutes black smoke in the hour for a chimney serving one boiler to seven minutes for a chimney serving four or more boilers.

A high maternal mortality is common to Blackburn and other textile towns. The rate for 1925 was the same as the average for the last nine years—namely, 5·7. The municipal maternity home has accommodation for 20 cases and towards the end of the year the medical officer of health was empowered to remit the minimum fee of 1½ guineas per week in cases of proved necessity. An antenatal clinic was begun in 1921 and is conducted by the assistant medical officer, Dr. Ella Mackenzie. The expectant mothers who attended during 1925 numbered 367. The total births were 1902. Of the total births 285 took place in institutions, 53 in midwives' houses, and of the confinements in private houses 37·1 per cent. took place in the kitchen or living-room. There were 74 still-births, equivalent to 3·9 per cent. of the registered live births, and the certified causes were as follows: 19 mal-presentations, 12 albuminuria, 3 ante-partum hæmorrhage, 2 difficult labour with instrumental delivery, 12 ill-health of mother, 1 malformation of fœtus, 2 of fall, and 23 not known. Ophthalmia neonatorum has not caused blindness in Blackburn for four years. Wet milk is not supplied through the centres, as it is found that when dried milk is supplied the babies are brought regularly to be weighed and examined. The fourth clean milk competition was held from January to March, 1925. There were only five entrants, however, and there are 68 inside and 95 outside dairy farms which retail milk in the borough. Of 94 samples of mixed milk examined at Liverpool University for tubercle, three gave a positive result and in eight cases the experimental animal died before the test was complete. One of the positive cases came from an outside farm which supplied "Certified" milk. The two other positive samples also came from outside farms, but in neither case was a tuberculous udder found. At one farm a cow had been sold, but at the other nothing was found to account for the infection of the milk.

The accommodation for tuberculous patients at corporation hospitals is to be improved by the provision of wide verandahs. Apart from the window-cleaning business managed by the Charity Organisation Society for ex-sanatorium patients, there is no system of after-care, and there is, says Dr. Holden, great need for it.

Northampton.

Dr. J. Doig McCrindle criticises the scavenging arrangements in his borough. One of the tips caused an intolerable smell in the neighbouring streets during the hot weather and a plague of flies. Owing to the utterly unsuitable receptacles for house refuse put out on the street and to the uncovered carts used, the condition of the streets on a dry windy day is a frequent source of complaint. Industrial smoke does not cause much pollution of the atmosphere in Northampton as the power in the factories is mostly supplied by gas or electricity.

Milk adulteration is apparently profitable in Northampton. In one case of 9·6 per cent. of added water a fine of 16*s.* with 4*s.* costs was inflicted. In another case a retailer was supplying milk 37 per cent. deficient in fat and with 14·1 per cent. of added water. On sampling the milk in course of delivery to the retailer the dairy farmers' product was found

to be 9 per cent. deficient in milk-fat and to have 13·3 per cent. of added water in one sample and 15·4 per cent. in another. The time-honoured defence of a leaky cooler was put in and a fine of £4 15s. with 5s. costs was inflicted. After being free from small-pox for 20 years Northampton had an outbreak of the mild type. There were 23 cases with no deaths. The revision of the register of notified consumptives has resulted in the removal of 75 persons as being cured and of 113 persons in the case of whom the diagnosis was not established.

SCHOOL MEDICAL SERVICE.

Name of town.	No. on roll.	Av. elem. school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.*
Carlisle	7895	6858	2819	7628	27·0
Tunbridge Wells	—†	3185	1185	2928	29·6
Torquay	3669	3123	1086	6180	18·1

* Excluding uncleanliness and dental defects.
† Not given.

Carlisle.

Dr. Joseph Beard draws attention to the invaluable aid given to the local authority by the Carlisle Council of Social Service which provides treatment for many ailing children at the convalescent institution at Silloth and sends others to recuperate at various homes; the council is now arranging to provide treatment for cripples in conjunction with the surgical staff of the Cumberland Infirmary. This help is doubly welcome, since there are at present no facilities in the city for dealing with either physically or mentally defective children. Open-air education is provided for 60 debilitated children at Newtown, where they are visited weekly by the tuberculosis officer, and each child in attendance is supplied with two meals a day. The excellent practice of supplying necessitous children with meals cooked at the domestic centres is in vogue. The council's scheme includes ophthalmic treatment and X ray exposures for various skin complaints as well as minor ailment and dental treatment. Operations for tonsils and adenoids and presumably for ear disease are carried out at the infirmary. Statistical tables show that there has been no diminution in verminous conditions of the head during the past few years. The attendance of parents at routine medical examinations is small (51·3 per cent.), but shows an increase from 48·4 per cent. in 1924.

Tunbridge Wells.

Dr. F. C. Linton points out the unsuitability of many of the present school buildings which are badly designed and unhygienic, with insufficient lighting and inadequate and unheated cloakrooms. Children arriving with wet clothing and feet have no means of drying them. There is little or no circulation of fresh air and sunlight is excluded. Playground accommodation is inadequate and the play instinct which determines growth and development is stifled, and since there is no director of physical exercises, games are played in haphazard fashion. Of course, these conditions are not peculiar to Tunbridge Wells, but they are specially noticeable in a health resort. Dr. Linton has good reason for his belief that such conditions are important factors in keeping up the incidence of enlarged tonsils and adenoids as well as much catarrhal and general affections. The coördination of the various health services in the town is good and the school medical officer supervises the debilitated children under school age. The success of a small, privately-run venture has encouraged the education authority to arrange for an open-air school on more ambitious lines and an orthopædic scheme is now coming into operation, while a beginning has been made to provide suitable education for the feeble-minded by conveying ten cases to the special school run by the Kent educational authority in Tonbridge.

Torquay.

Dr. T. Dunlop includes in his report the findings of Dr. J. V. A. Simpson with briefer notes by the oculist and dentist. Dr. Simpson has carried out an investigation on the relationship of rowing and physical fitness. Torquay is the first authority to apply for the permission of the Board of Education for elementary school-boys to take rowing as a part of their physical education. The estimates of fitness were based on Dr. A. G. Woolham's modifications of Flack's breathing tests, and the results were compared with the relative fitness of various types, including some weakly lads from an open-air school. The most valuable single method was the "persistence test"—i.e., the time a column of mercury could be held at a certain level by blowing into a standard tube, the pulse-rate being taken every five seconds. Such investigations are valuable as a foundation for finding tests of physical fitness comparable with the Binet-Simon tests for intelligence. Dr. Simpson also continues his comprehensive records of ventilation, tested by the kata-thermometer. It is expected that the open-air school will materially benefit cases of rheumatic heart affections. An unusual experiment was recently carried out at this school by entertaining a party from a London myope class. Dr. D. Wilson, the ophthalmic surgeon, remarks on the increasing attention paid in Torquay to fusion-training in squint and to the care of glasses. Only one-seventh of the dentist's time is taken up by inspection, the remainder being devoted to treatment, in which the main consideration is the preservation of the permanent teeth. This report contains much of scientific and practical interest.

Obituary.

THOMAS CHURTON, M.D. ABERD., M.R.C.S. ENG.

THE death of Dr. Churton at the advanced age of 87 will come as a real sorrow to a large circle of professional and lay friends, as well as to the general public of Leeds. Born at Stafford, he was educated at Shrewsbury and afterwards became a student of the Leeds School of Medicine. His mother, who was left a widow shortly after his birth, became matron of the old infirmary at Leeds and, like her own mother, who had been matron at the Salop Infirmary in Shropshire, did good work in that capacity. Young Churton became one of the junior residents at the infirmary, and in 1862 took the diploma of the Royal College of Surgeons. For a good many years he was in general practice at Erith, but he always aimed at consulting practice and for this he prepared himself by making regular visits to London several times each week and attending the practice of Guy's Hospital and other teaching centres. He then threw up his general practice and went for a year's intensive study to Aberdeen University where, under the conditions then in force, he graduated as M.B. in 1876 and M.D. in 1877. In after years, Dr. Churton often spoke of the pleasures of this time at Aberdeen and of the kindness which he received from everyone at the University and infirmary. In 1879 he was elected honorary physician to the General Infirmary at Leeds, becoming colleague to Dr. Clifford Allbutt—as he then was—and to Dr. J. E. Eddison. He remained a member of the full staff till 1919, and during all that time was one of the most assiduous of honorary officers, devoting himself heart and soul to the welfare of the patients entrusted to his care. He was lecturer on medicine to the Yorkshire College when that College was a constituent part of the Victoria University, and was also on the staff of the old Leeds House of Recovery, which was one of the early fever hospitals of this country,

having been founded in the year 1801. He did a great deal of work among the labouring classes when he was on the honorary staff of the Leeds Public Dispensary, and he was consulting physician to the Batley Cottage Hospital.

The Leeds and West Riding Medico-Chirurgical Society was started in 1872 and Dr. Churton became a member in 1876; he acted as secretary from 1878 to 1884 and occupied the presidential chair in 1890. His regular attendance, not only during the earlier years of his connexion with the society, but for many years after he had passed the chair, was an example and a stimulus, and the society paid him the highest compliment in its power by electing him an honorary life member on his retiring from active practice. To the work of the society he brought his best in the way of papers and in the exhibition of cases, and his rising to take part in any discussion was always welcomed by the members, who were captivated by the charm of his voice, by his humour, and by the sincerity and earnestness which he always showed on these occasions. He did not publish much, but whatever he wrote was notable for its thoroughness.

The memory of Dr. Churton will long be preserved by his colleagues of the medical profession in Leeds as that of a high-minded man, conscientious in his work, and free from any trace of self-seeking.

CUTHBERT BALFOUR PAUL, M.B., F.R.C.S. EDIN.

WE have to record the death of Mr. C. B. Paul, of Carlisle, surgeon to the Cumberland Infirmary. At the beginning of last month, whilst making a tour of Dutch hospitals with a party of English surgeons, Mr. Paul contracted erysipelas, and on Oct. 25th he died of septicæmia at Amsterdam, being then 49 years of age.

Cuthbert Balfour Paul was the son of Sir James Balfour Paul, for many years Lyon King at Arms. He was educated at the Edinburgh Academy, which he represented at both cricket and football, and he graduated in medicine at Edinburgh University in 1900. After holding house appointments at the Royal Infirmary and the Edinburgh Hospital for Sick Children, he became private assistant to Sir Harold (then Mr.) Stiles and worked with him in that capacity for six years. In 1903 he took the diploma of F.R.C.S. Edin. and in the following year was elected assistant surgeon to the Chalmers Hospital, Edinburgh, a post which he held until 1908, when he accepted a similar appointment at the Hospital for Sick Children. Here he stayed until 1912 in sole charge of the surgical out-patient department, though the work was briefly interrupted to enable him to spend a short time in Germany and assist Sir Harold Stiles to translate into English the fifth German edition of Kocher's "Text-book of Operative Surgery." In April, 1912, Mr. Paul left Edinburgh and accepting the appointment of assistant surgeon to the Cumberland Infirmary, soon built up a large practice in the Carlisle district. On the outbreak of war in 1914 he offered himself unconditionally for service at the front, but his offer was not accepted and he was posted in England with a Territorial division until, at the urgent request of the infirmary committee, the War Office released him to carry on his work at the Cumberland Infirmary. When a Red Cross Hospital was established at Murrell Hill House he accepted the post of visiting surgeon, and during the remainder of the war did much valuable work there and elsewhere. Mr. Paul took the keenest possible interest in the Cumberland Infirmary and always served it loyally; his considerable abilities inspired great confidence in his patients. Two years ago, as there was no vacancy, the statutes of the infirmary were amended so that he might be appointed full surgeon—a compliment which he obviously deserved. A sociable and generous man, fond of sport and music, he was always ready to take part in the social activities of the district, where so sudden an end to his life will be widely regretted. The funeral service in Carlisle Cathedral on Oct. 29th was attended by a very large number of people.

DAVID LLOYD, J.P., M.B., C.M. GLASG.

Dr. David Lloyd, who died on Oct. 23rd in his sixty-second year, was born at Ty Mawr, near Ruthin, and educated at Ruthin Grammar School. He began his medical studies at the Middlesex Hospital and afterwards proceeded to the University of Glasgow, where he graduated in 1891. His first experience of practice was gained in a populous part of South Wales, after which, in 1892, he settled in Denbigh, where he remained until his death. During this residence in the town Dr. Lloyd held every post of honour and most of the local appointments. He was mayor of Denbigh for two years (1903 and 1904), a justice for the town and county, and a member of the county council, on which he served for a time as alderman. For many years he represented the county council on the board of governors of the North Wales Counties Lunatic Asylum; he was medical officer of health for Denbigh and medical officer to the famous Howells' School there. "Dr. Lloyd," writes a colleague, "was always a student and was most anxious to be up to date. He found time to take post-graduate classes in Liverpool University and paid weekly visits to the Liverpool hospitals for special study. There can be no doubt that his death, at a comparatively early age, was due to his fondness of his professional work and not taking a sufficiently serious view of his own health, as pointed out to him by his medical advisers. His death will be keenly felt by a very large number of friends and patients throughout North Wales." Dr. Lloyd leaves a widow, but no family.

WILLIAM HENRY WHITE, M.D. DUB., M.R.C.P. LOND.

Dr. William Henry White, whose death occurred suddenly on Oct. 22nd, was born at Wexford in 1849, and graduated at Trinity College, Dublin, in arts and medicine. He came to England and settled in practice at Westbury, Shropshire, but found that the work of a large general practice was unsuited to his health. After a necessary rest he decided on a London practice, obtained the M.R.C.P. Lond., and for the rest of his life resided in Weymouth-street, where he practised for 45 years and where he was seeing patients up to the day of his death. Here he acquired, almost from the start, a large number of patients. Very definite in diagnosis, perhaps somewhat dogmatic, his treatment was intensely practical; he was quick to discard useless methods, and had a great hold on the reason and regard of his patients, his striking and impressive appearance being of assistance. His personal influence was as great with the poor as with the rich, largely owing to his cheerfulness and genuine kindness, so that patients crowded to his clinics at the hospitals where he was physician—the Royal Hospital for Diseases of the Chest and the St. Marylebone Dispensary. By his personal friends he will ever be remembered for his charm and powers of sympathy.

In these days he seemed of an older fashion. He was a yachtsman and a great lover of horses, bred his own animals, was for many years a familiar rider in the Row, and till only recently was in the habit of driving his own pair of horses on his rounds. The death of his wife in January last, just after the date of their golden wedding, was a grief from which he never recovered. He is survived by one daughter, Mrs. Constance E. Hughes, and one son.

Sir Arnold Lawson writes: "I should like to add my testimony to the loss the profession has sustained by the death of my old friend, Dr. W. H. White. He was one of the kindest-hearted men I have ever met, always ready to help, and always one whose help was valuable. He had an enormous practice and nobody better deserved success of this kind, for he was a good friend as well as a good physician, with the result that his patients were devoted to him. He was a most able clinician with a strain of originality in his treatment and outlook, which often made his opinion in a difficult case most valuable, and which, too, often brought success after others had failed. One of his strong

points was his independence. He was always ready to take his own line, though it might at the time involve disagreement with his colleagues, and, in my experience, which has extended over many years, he was generally right."

FRANK HUGH BARENDT, M.D. LOND., F.R.C.S. ENG.

Dr. F. H. Barendt, who died at Liverpool on Oct. 28th after a short illness, was well known in Rodney-street as a sound and helpful consultant. The son of Mr. J. E. Barendt, he was educated at Liverpool College and Danzig, and later at the University of Liverpool, where he distinguished himself as a student. In 1885 he qualified for medical practice and two years later graduated as M.B. Lond. The next few years were spent in post-graduate study at Vienna and in house appointments at the Liverpool Royal Infirmary and elsewhere. In 1890 he became F.R.C.S. Eng. and returned to Liverpool, where he was eventually appointed physician in charge of the skin department at the Royal Southern Hospital and surgeon to St. George's Hospital for Diseases of Skin. These posts he held until his death. Dermatology he made his special study and his contributions to its literature were numerous; in 1913 he was vice-president of the Dermatological Section of the British Medical Association. Though never seeking prominence Dr. Barendt entered heartily into all the medical activities of Liverpool. He held office in turn as librarian, editor of the *Journal*, and vice-president in the Liverpool Medical Institution, and he was a strong supporter of the Medical and Literary Society; there were very few subjects on which he had not something of value to say. His own training had been on classical lines and this very clearly moulded his style of speaking, but he was also master of several modern European languages. "In Dr. Barendt," writes a colleague, "family ties seemed unusually deep and strong. As a friend his sympathies were very wide, and many of the younger members of the profession had good occasion to know it. As a man his conduct was modelled by a very definite sense of duty, although a strain of humour and a kindly disposition prevented unnecessary clashing where his ideas did not coincide with those of his colleagues."

Dr. Barendt leaves a widow and several children. His eldest surviving son is a medical student in London.

ARTHUR WILLIAM SCATLIFF, L.R.C.P. EDIN., D.P.H.

Dr. A. W. Scatliff, who died recently at Ditchling Common, Sussex, was the second son of the late Dr. J. Parr Scatliff, of Sloane-street, London, and a member of a family many of whom have been medical practitioners. He studied medicine at St. George's Hospital, and qualified as L.S.A. Lond. in 1876, soon afterwards acquiring diplomas at the Edinburgh Royal Colleges. He then settled at Margate where, as a man of personal charm and wide sympathy, he soon had a large practice; he also acted as medical officer of health and police surgeon for the town. In 1904, however, after 25 years' work at Margate, he accepted an appointment under the Church Missionary Society and went to China, where he was stationed at the Men's Hospital, Futsing, in the Fuhkien Province. Here he remained until 1912 when he came home on furlough, returning again to China early in 1914. On the outbreak of the late war he offered to go home to fill the place of some younger man, but an attack of typhoid fever made his departure impossible. Experiences in China during nearly 17 years seriously damaged his health, and in 1920 he reluctantly resigned his appointment and went back to England; since then he had been almost an invalid. Dr. Scatliff did valuable work in China, and was instrumental in securing the erection of a large hospital in Fuhkien which served a large area. He was the author of a number of contributions to medical journals on various aspects of public health.

Correspondence.

"Audi alteram partem."

POST-OPERATIVE BURNS.

To the Editor of THE LANCET.

SIR,—Post-operative burns from the application of hot-water bottles to patients just returned to bed have been and are far too frequent. Such burns should never occur. The surgeon or medical man in charge is the person who should be blamed, not the hospital or the nursing home. It is a most extraordinary fact how medical men will always keep on the old lines and are so slow to analyse facts in a commonsense way.

Consider for one moment the condition of a patient who goes through an operation under a general anæsthetic, where possibly a preliminary injection of morphia has been given. There is more or less unconsciousness and shock. The patient is transferred to a bed with sheets—good conductors of heat—and hot bottles are applied. It is impossible for a patient to react to this heat, even though a nurse's hand can bear the heat quite well. Nurses can bear a great deal of heat, as witness the experienced surgeon who is going to wash his hands in hot water. He "dabs" his fingers carefully in first of all before he plunges the whole hand. The greater the shock the less likely is the patient's skin able to react to hot bottles; and heat which would not burn a healthy, conscious person will burn a shocked one.

Once and once only to my knowledge has a burn occurred in my practice—private or hospital—and many thousand patients have passed through my hands. A post-operative patient should be placed between blankets which have been warmed by hot bottles and these bottles removed when the patient is returned to bed. In many places nowadays a cage can be placed over the patient with an electric bulb attached, a blanket intervening between the patient and the bulb.

After seeing several cases of post-operative burns in consultation—in one case burns of the third and fourth degree on the outside of the thighs in a patient who had been operated on for hydrocele; in another burns down to the bone on both heels where there had been a prolonged mastoid operation; and so on—it makes a very deep impression. In many homes the head nurses tell me that the surgeons order plenty of hot bottles to be packed round the patient, and the great dread the nurses responsible have for after-burn. In bad cases hot bottles only add to the shock, and, considering their wide use, it is a surprise to me that there are so few sufferers. Some years ago I heard a case in court where an action was brought against a hospital on account of such a burn, and the case went entirely against the hospital, not because there was gross carelessness, but because the burn had occurred.

There is another word of warning, and that is where pure carbolic acid is used in such operations as curettage. A drop of this in contact with the skin will produce a burn which very conveniently can be attributed to a hot-water bottle.

I am, Sir, yours faithfully,

Edinburgh, Oct. 22nd, 1926. J. W. DOWDEN.

ASHAMED TO BEG.

To the Editor of THE LANCET.

SIR,—I should be grateful if you would allow me to draw attention in THE LANCET to a matter which is at present in a very unsatisfactory state—namely, surgical and medical attention on medical men (and their families) who are unable from their class of practice to send patients to consultants and specialists. One in this position hesitates to take up the time and give trouble (perhaps necessitating a major operation)

without some *quid pro quo* and the result is that complaints are let go on with much disability or till too late to do anything for radical cure. No fee will be taken if offered and even pressed. A present chosen after much thought may not be valued and the consultant is not pleased. I and my wife have wanted for some time to consult someone, but the existing state of affairs has prevented us from doing so. At present, it amounts to this, that medical men in a certain class of practice are the only people who cannot freely get willing necessary skilled attention even if they are prepared to pay. Could not some scale of fees be arranged that would allow medical men to consult specialists and be welcomed and attended to equally as members of the public paying the usual fee?

I assure you this is a serious matter for a large number of us and I earnestly hope that something can be done to solve the difficulty.

I am, Sir, yours faithfully,

Nov. 1st, 1926. MEDICO.

THE PASTEURISATION OF MILK.

To the Editor of THE LANCET.

SIR,—I do not think it will serve any purpose to enter into further discussion. I remain of the conviction that the milk-supply in this country is dangerous. The total amount of satisfactory milk available does not suffice for the supply of a quarter of a million people, even at the ridiculously low rate of consumption of 0·25 pints per head per day; and the price at which this inadequate supply is vended places it out of reach of any but well-to-do families. It is in pasteurisation, and in pasteurisation alone, that we can see in the immediate future a satisfactory milk-supply for the bulk of the people.

I am, Sir, yours faithfully,

Huddersfield, Oct. 28th, 1926. S. G. MOORE.

THE NOMOGRAPHIC METHOD:

AN ERROR OF OMISSION.

To the Editor of THE LANCET.

SIR,—Dr. W. Feldman has drawn attention to the omission of any reference to his name in connexion with the use of the nomograph for Dubois formula on page 98 of my recent work on "The Fundamentals of School Health." This was entirely accidental, and due to elimination of reference to the nomograph as a graphic method, from the chapter on Statistics, merely retaining the figure as of possible use when transferred to that on Nutrition. Amid the thousands of references there was almost bound to be some error of omission or commission, and in this case the reference should have been to THE LANCET, 1922, i., 273.

I am, Sir, yours faithfully,

Colinton, Oct. 27th, 1926. JAMES KERR.

THE LATE DR. W. H. FLEETWOOD.—After some months of failing health Dr. William Hardy Fleetwood died on Oct. 27th at Hadleigh, Suffolk, where he had been in practice since 1919. He studied medicine at the London Hospital, qualified as M.R.C.S. Eng. in 1905, and acted as house surgeon at the West Ham and East London Hospitals, and as resident medical officer at the Mill-road Infirmary, Liverpool. For some time before the war he was in practice at Hoylake, near Liverpool. He saw service for a long period in charge of an advanced hospital on the Salonika front and retired at the end of the war with the rank of major in the Royal Army Medical Corps. After holding an appointment for a time as registrar at the Kitchener Hospital, Brighton, he went to Hadleigh where he took much interest in the affairs of the town, working for the Hadleigh Athletic Association and the local branch of the British Legion and the local lodge of Freemasons. Dr. Fleetwood leaves a widow.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a Congregation held on Oct. 29th, the following degrees were conferred:—

M.D.—L. B. Cole.
M.B. and B.Ch.—W. W. McLean, R. H. Metcalfe, and A. T. Worthington.
M.B.—J. H. Hannan.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates have been successful in the undermentioned subjects:—

Surgery.—H. J. Fordham and W. Johnson, St. Mary's Hospital; R. C. Glover, Leeds and St. Bartholomew's Hospital; R. I. Richards, St. Bartholomew's Hospital; and H. Rundstrom, St. George's Hospital.
Medicine.—A. Heukamp, Gottingen and Royal Free Hospital; W. Howard, Liverpool; T. W. Riseley, Cardiff; and W. D. Williams, London Hospital.
Forensic Medicine.—J. R. S. Bowker, Middlesex Hospital; A. Heukamp, Gottingen and Royal Free Hospital; W. E. Ivers, Manchester; S. Jenkinson and R. W. Wood, St. Bartholomew's Hospital; T. W. Riseley, Cardiff; V. K. Samy, Dundee; and W. D. Williams, London Hospital.
Midwifery.—H. M. de Hartog, St. Mary's Hospital; B. D. Jain and E. H. Waller, Charing Cross Hospital; A. W. Marsden, Birmingham; C. E. Nicholas and W. D. Williams, London Hospital; J. Pattis, Innsbruck and University College Hospital; and D. K. Reynolds, King's College Hospital.

The Diploma of the Society has been granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: R. C. Glover, A. Heukamp, W. Johnson, C. E. Nicholas, J. Pattis, and R. I. Richards.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary quarterly comitia of the College was held on Oct. 28th, the President, Sir John Rose Bradford, being in the chair. The following candidates, having passed the necessary examinations, were admitted as Members of the College:—

Drs. Kenneth Blackie Aikman, Robert Dudley Alexander, Henry Cohen, William Robert Fitzgerald Collis, Hector Alfred Colwell, James Gordon Danson, Iforwyn Glyndwr Davies, Dinshaw Hormusji Dudha, Vivian Feldmar, George Fletcher, Charles Skinner Hallpike, Geoffrey Edward Roper Hamilton, Philip Montagu D'Arcy Hart, Richard Brunel Hawes, Richmond Jeremy, Edgar Hartley Kettle, John Faulks Landreth, Oscar Carl Moller, Austin Threlfall Nankivell, Charles Edward Newman, Arthur Pool, Arthur Digby Porter, Eric Alfred Blake Pritchard, Edward Scott, Sobhi Rizkalla Simaika, Sir Eric Stuart Taylor, Paul Biddulph Wilkinson, and Leslie John Witts.

F. H. Maugham, Esq., K.C., was appointed a Senior Standing Counsel on the nomination of the President, vice A. C. Clauson, Esq., K.C., appointed a Judge in the High Court of Justice.—It was resolved that in 1927 a conversazione should be held at the College in honour of the centenary of the publication of Richard Bright's book, the date to be fixed subsequently so as to coincide with the celebration at Guy's Hospital.—On the motion of Dr. J. S. Fairbairn it was resolved that the Committee of Management should be asked to report to the College on the efficiency of the Examination in Midwifery and Diseases peculiar to Women in the Final Examination of the Conjoint Board.—Dr. H. L. Tidy was elected a member of the Committee of Management in place of Sir William Hale-White, who has resigned after eight and a half years of service. Dr. Raymond Crawfurd, who retired in rotation, was re-elected.—Two communications were received from the Home Office. The first stated that a committee on the Poisons and Pharmacy Acts is prepared to hear evidence on matters within the scope of the terms of reference to the committee, and asked if the College would wish to lay its views before the committee. The second enclosed copies of amended regulations under the Dangerous Drugs Act, and asked the College to nominate a representative to serve on the tribunal for England and Wales, and also a substitute for such representative in case of his unavoidable absence. Sir. W. Hale-White and Dr. J. Fawcett were appointed.—A photograph of a portrait of Nathaniel Johnston, a former Fellow of the College, together with some biographical notes, was received from Dr. A. J. Hall, of Sheffield. The thanks of the College were voted to Dr. Hall.—A report was received from the Committee of Management recommending that certain universities which were removed in 1918 from the list of recognised places of study, graduates of which are admissible to the Final Examination of the Board, should now be reinstated in the list—namely, Graz, Innsbruck, and Vienna; Prague; Berlin, Bonn, Breslau, Erlangen, Freiburg, Giessen, Göttingen, Greifswald, Halle, Heidelberg, Jena, Kiel, Königsberg, Leipzig, Marburg, Munich, Tübingen, and Würzburg; Budapest. The Committee also recommended that the University of Hamburg be added to the list of recognised German universities, it having been

ascertained that British doctors are admissible to the Staats Examen in Germany and Austria by recognition of their studies and examinations in Great Britain. The Committee also recommended that the Preston and County of Lancaster Queen Victoria Royal Infirmary be added to the list of hospitals recognised by the Board. The Committee's report was adopted.—A report was received from Dr. Dawtrey Drewitt, the representative of the College on the Committee of Management of the Chelsea Physic Garden.—A report was received from Lord Dawson on his conference with the Medical Research Council in regard to the continuation of the publication of the science abstracts.—Books and other donations presented to the library during the past quarter were received and thanks returned to the donors.—The replica of the portrait of the late Sir Richard Douglas Powell, Bart., a former president of the College, given by the Dowager Lady Powell and by Colonel Sir Douglas Powell, was on view.—After some formal College business, the President dissolved the Comitia.

Licences to practise were conferred upon 185 candidates (including 25 women) who have passed the Final Examination of the Conjoint Board. The following are the names and medical schools of the successful candidates :—

Y. Abdel-Messiah, Middlesex ; A. Ali, Cairo and St. Bart.'s ; G. E. Aling, Calcutta and Guy's ; J. H. Anderson, Dublin and Guy's ; G. F. Andrews, Middlesex ; M. C. Andrews, Cambridge and Univ. Coll. ; H. W. Applin, Guy's ; J. M. Ashton, St. Thomas's ; H. Awrounin, Charing Cross ; L. G. Backhurst, Cambridge and St. Thomas's ; Grace Batten, Oxford and King's Coll. ; Rosie B. Becker, Leeds ; M. Behr, Cape and Middlesex ; Florence K. Bibby, Charing Cross ; G. Bindman, Durham ; G. W. Black, Middlesex ; E. J. C. Bockett, King's Coll. ; E. S. Bolton, Cambridge and Leeds ; Susanna M. Bornman, Cape and Royal Free ; J. W. Bottoms, London ; H. W. Bowen, St. Thomas's ; E. Bowen-Jones, Guy's ; H. Brown, Sheffield; F. W. Bradley, Guy's ; J. G. Brandon-Bravo, Amsterdam and St. Thomas's ; W. A. Briggs, Cambridge and St. Bart.'s ; M. Bryer, St. Bart.'s ; R. H. Burns, Cambridge and London ; Izza Caley, King's Coll. ; C. J. N. Cameron, Univ. Coll. ; S. Carnofsky, Cape and Guy's ; J. C. D. Carothers, St. Thomas's ; W. H. Carr, Leeds ; J. R. B. Chatterton, Univ. Coll. ; J. A. Cholmeley, St. Bart.'s ; S. L. A. Clarke, Guy's ; P. F. Cluver, Oxford and St. Bart.'s ; A. Cohen, London ; W. K. Coombes, Bombay and St. Mary's ; D. H. Couch, Guy's ; H. T. Cox, Cambridge and St. Thomas's ; E. S. Curtiss, St. Bart.'s ; R. P. P. Davies, St. George's ; Winifred M. de Kok, Cape and Royal Free ; A. C. de Sousa, Middlesex ; A. A. Digges la Touche, Cambridge and Leeds ; T. A. J. M. Dodd, Oxford and St. Bart.'s ; J. Dywien, Guy's ; Phyllis M. Edgar, Univ. Coll. ; H. M. Elliott, Cambridge and St.Bart.'s ; E. A. R. Ennion, Cambridge and St. Mary's ; H. K. Evans, Middlesex ; Leonora S. Evans, Royal Free ; S. H. Evans, Sheffield ; W. G. Evans, Cardiff ; A. W. Fawcett, Edinburgh ; Dorothy D. Forster, St. Mary's ; A. E. Fraser-Smith, St. Bart.'s ; E. G. Frewer, Cambridge and London ; A. H. Gale, Oxford and Univ. Coll. ; Margaret E. J. Gashion, Charing Cross ; J. B. George, St. Thomas's ; Dorothy Gibbs, Charing Cross ; R. M. Gilchrist, Cambridge and St. Bart.'s ; H. K. Goadby, Cambridge and St. Thomas's ; Marjorie Goldrich, Charing Cross ; J. A. Gornall, Manchester ; J. Gough, Cardiff ; R. A. Graff, Middlesex ; E. C. Grant, New Zealand and St. Mary's ; T. L. Griffiths, Cambridge and St. Bart.'s ; H. L. Gulati, Lahore and Charing Cross ; G. S. Hall, Birmingham ; A. C. de B. Helme, Cambridge and St. Bart.'s ; G. F. Henderson, Univ. Coll. ; G. R. N. Henry, St. Thomas's; V. V. H. Hoakai, Guy's ; O. Hooper, Oxford and London ; H. O. Hopkins, Middlesex ; F. S. Hubbersty, Cambridge and Univ. Coll. ; T. C. Hunt, Oxford and St. Mary's ; C. B. Huss, Cardiff and St. Bart.'s ; A. B. Hyman, Guy's ; R. Illingworth, Oxford and Manchester ; A. J. Johnson, Cambridge and St. Bart.'s ; E. C. Johnson, St. Mary's ; Louise A. Johnson, Birmingham ; C. W. Jones and W. T. Jones, Cardiff ; F. E. Kingston, London ; F. Knoyle, Westminster ; L. C. Lancaster, Cambridge and St. George's ; F. R. Langmaid, Middlesex ; C. J. Laviers, Cambridge and St. Bart.'s ; H. W. Lewis-Philipps, Guy's ; D. G. Lloyd, Cardiff and London ; Flora W. Lloyd, St. Mary's ; G. E. Macdonald, Oxford and London ; J. R. Macdougall, St. Bart.'s ; J. McFadzean, Glasgow and London ; W. H. S. McGregor, St. Bart.'s ; W. McLaren, Durham ; H. E. McLaughlin, St. Bart.'s ; W. N. Maclay, Cambridge and St. George's ; E. H. Madge, Univ. Coll. ; P. C. Mallam, Oxford and St. Mary's ; S. M. Mallick, Lahore and Guy's ; C. Mani, Birmingham ; H. Mannington, Middlesex ; J. N. Martin, M. N. Menon, and R. J. Milbank, Guy's ; Barbara H. Mitchell, Royal Free ; Mary S. Mitchell, St. Mary's ; E. R. W. Mons-Glaser, Basle and Middlesex ; H. W. Morck, Durham and Charing Cross ; E. W. T. Morris, Adelaide and St. Thomas's ; T. W. Morris, Liverpool ; E. F. Morton, Cambridge and Middlesex ; B. E. T. Mosse, Cambridge and St. Bart.'s ; B. G. S. Mudali, Madras ; E. A. Nicoll, Cambridge and St. George's ; E. F. D. Owen, St. Bart.'s ; G. E. Parker, Cambridge and St. Thomas's ; N. D. Patel, Univ. Coll. ; L. L. P. Paterson, Melbourne and St. Mary's ; R. H. Pearce and Janet R. Phillips, Birmingham ; R. A. Phillips, Cambridge and St. Thomas's ; C. B. Picken, Guy's ; H. A. Pim, St. Thomas's ; Winifred A. L. Pollock, Westminster ; H. W. A. Post, Guy's ; Margaret M. Price, St. Mary's ; O. L. Prosser, Liverpool ; Lesley M. C. Probyn, Charing Cross ; P. N. Ray, Calcutta and St. Bart.'s ; A. M. Richards, Univ. Coll. ; Hilda M. Richards, Royal Free ; A. H. Richardson, Birmingham ; J. H. O. Roberts, St. Bart.'s ; D. A. Robertson, Oxford and London ; A. P. Ross, King's Coll. ; A. W. L. Row and G. P. Roxburgh, Oxford and St. Bart.'s ; J. A. Rushworth, Manchester ; B. F. Russell, London ; N. A. Saif, Cairo and St. Thomas's ; F. G. A. Shaheed, Cairo and Westminster ; G. C. Shepherd, Charing Cross ; H. L. Shimmin, Manchester ; D. P. Simpson, St. Bart.'s ; J. W. Simpson, Manchester ; B. A. Smith, King's Coll. ; H. Smith, Cambridge and St. George's ; R. S. Smith, Univ. Coll. ; E. R. Smithard, Middlesex ; W. R. C. Spicer, Guy's ; Karin Stephen, Univ. Coll. ; C. E. R. Stephenson, St. George's ; C. L. Stote, Cambridge and London ; R. Stuppel, Cardiff and Univ. Coll. ; F. J. Swinton-Esher, Birmingham ; H. Syed, Bombay and King's Coll. ; W. K. Targett, Guy's ; J. E. Teale, Leeds ; J. G. T. Thomas, Cambridge and St. Mary's ; A. R. Thompson, London ; O. L. Truscott, St. Thomas's ; C. I. Tuckett, Cambridge and St. Thomas's ; F. B. Turner, Cambridge and London ; Aimee A. L. Vailliant, Liverpool ; L. S. P. Wakeley, King's Coll. ; A. C. R. Walton, Birmingham ; Kathleen M. Ward, Liverpool ; N. Wassif, Assiut and Charing Cross ; R. Watson, Cambridge and Univ. Coll. ; T. C. S. Webb, Univ. Coll. ; W. N. Welinkar, Bombay and Middlesex ; Beatrice A. Wilkinson, King's Coll. ; L. S. Williams, Guy's ; A. A. Wilson, McGill and St. Mary's ; A. G. Wilson, Oxford and St. Thomas's ; C. S. Wise, St. Bart.'s ; and A. H. Wortman, Univ. Coll.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At recent dental examinations, out of 42 candidates entered, the following 16 have passed the Final Professional Examination and have been granted the diploma of L.D.S. R.C.S. Edin. :—

George C. Hodgson, Maria L. Burnet, Alexander G. L. Anderson, Francis Gibson, Bartholomew Hair, Henry G. Paterson, Ian Mc.G. Chisholm, James W. Galloway, Hugh N. Maclachlan, James A. Falconer, Edward L. Calder, Douglas J. Campbell, Henry McKenzie, Joseph L. Thomson, William Wallace, and James R. J. Cameron.

The following candidates passed in the under-mentioned subjects :—

Pathology.—John McAra, Neil I. Macmillan, Alexander S. Roberts, Bernard Silverston, Vernon L. Shearer, Andrew R. Ferguson, Gladys E. Munro, and Annie M. Kean.

Medicine.—Neil I. Macmillan, Alexander S. Roberts, Barryhill Moore, Bernard Silverston, Vernon L. Shearer, Andrew R. Ferguson, Gladys E. Munro, David Dunnet, and Edwin H. B. Gooch.

Surgery.—John McAra, Neil I. Macmillan, Bernard Silverston, Vernon L. Shearer, Andrew R. Ferguson, Gladys E. Munro, David Dunnet, Edwin H. B. Gooch, Annie M. Kean, and William G. Thow.

UNIVERSITY OF DUBLIN: SCHOOL OF PHYSIC, TRINITY COLLEGE.—At examinations held recently the following candidates were successful :—

FINAL MEDICAL EXAMINATION.

Part I., Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Pathology and Bacteriology.—Gerald C. Dockeray (passed on high marks), Samuel Beggs, Ronald H. Bland, Daniel M. Brink, John R. Hanna, Harold E. Knott, and Ion W. Pigott.

In Completion.—George O. Chance, Edward M. Gamble, J. Horwich, Evan K. Malone, and Claud E. G. Nunns.

ROYAL INSTITUTE OF PUBLIC HEALTH.—The Harben lectures for 1926 will be delivered in the lecture theatre of the Institute, 37, Russell-square, London, W.C. 1, on Nov. 15th, 18th, and 22nd, at 4 P.M., by Prof. W. W. C. Topley. The subject will be Quantitative Experiments in the Study of Infection and Resistance. All interested are invited to attend and no tickets of admission are required.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Thursday, Nov. 11th, at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., Mr. Arthur E. Giles will lecture on Emergencies in Gynæcological Practice. On the same day, at 1 P.M., Mr. Maurice Whiting will give a demonstration in Clinical Ophthalmology at the Royal London Ophthalmic Hospital, whilst on Nov. 12th, at 2 P.M., Mr. L. C. Rivett will give a clinical demonstration at the Chelsea Hospital. Both lecture and demonstrations are open to members of the medical profession without fee. The Royal Waterloo Hospital will hold a course in medicine, surgery, and gynæcology from Nov. 15th to Dec. 4th ; the fee will be £3 3*s*. From the same date there will be a one month's clinical course in Dermatology at the St. John's Hospital (fee £1 1*s*.) ; practical demonstrations in pathology are also being arranged (fee £4 4*s*.). From Nov. 22nd onwards a week's course in Diseases of the Rectum will be given at the St. Mark's Hospital, with instruction by demonstration, operation, and lecture. A late afternoon course in Neurology will begin on Nov. 22nd and continue for four weeks at the West End Hospital for Nervous Diseases, 73, Welbeck-street, W. A course for general practitioners will be provided for by the London Temperance Hospital from Nov. 29th to Dec. 11th. Courses in Obstetrics can now be arranged at the Queen Charlotte's Hospital and the City of London Maternity Hospital and practical courses in Anæsthetics can also be arranged. Copies of all syllabuses, of the General Course Programme, and of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

UNIVERSITY OF LONDON: *University College.*—The second of four lectures on Insulin by Dr. C. H. Best will be given at 5 P.M., on Nov. 10th at University College, Gower-street, W.C. 1, and the other two lectures will be at the same hour on the two following Wednesdays. Admission is free without ticket.

Birkbeck College.—A public lecture on University Education in the United States will be given by Mr. Edwin Deller, LL.D., Academic Registrar of the University, on Monday, Nov. 15th, at 5.30 P.M., in the theatre of the College. The chair will be taken by Sir William H. Beveridge, Vice-Chancellor of the University, and admission will be free without ticket. The address of the College is Bream's Buildings, Fetter-lane, London, E.C. 4.

Sir Cuthbert Wallace has been elected Dean of the Faculty of Medicine of the University of London for the period 1926–28.

HUNTERIAN SOCIETY.—A meeting of this society will be held at the Cutlers' Hall, Warwick-lane, London, E.C., on Monday, Nov. 15th, at 8.45 P.M., when there will be a discussion on Medicine and the Press. Among the speakers will be Sir Humphry Rolleston, Lord Riddell, Mr. J. M. Bulloch, LL.D. (editor of *The Graphic*), Dr. Graham Little, M.P., Mr. W. J. Evans (late editor of the *Evening News*), and Dr. Leonard Williams. Fellows may bring non-medical guests to this meeting.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—An evening meeting will be held at the society's house, 17, Bloomsbury-square, London, W.C. 1, on Tuesday, Nov. 9th, at 8 P.M., when Dr. J. H. Burn, director of the society's pharmacological laboratories, will read a paper on Some Methods of Biological Assay. Medical friends of members and associates will be welcome.

NATIONAL COUNCIL FOR MENTAL HYGIENE.—A public meeting will be held at the house of the Royal Society of Medicine, 1, Wimpole-street, London ,W. 1, on Wednesday, Nov. 17th, at 4.45 P.M., when Lord Southborough will take the chair and an address will be given by Mr. H. P. MacMillan, K.C., Chairman of the Royal Commission on Lunacy and Mental Disorder (1924-26). The third annual report of the Council may be had from the secretary at 118, Windsor House, Victoria-street, London, S.W. 1.

LECTURES ON ULTRA-VIOLET THERAPY.—A series of lectures on Ultra-Violet Therapy by Dr. Percy Hall, medical editor of the *British Journal of Actino-Therapy*, began at the Institute of Hygiene, 28, Portland-place, London, W. 1, on Nov. 3rd, and will continue on Wednesdays at 8 P.M. up to and including Dec. 8th. The subject of the next lecture on Nov. 10th is the Physics, Physiology, Biology, and Pathology of Light.

NATIONAL MILK CONFERENCE.—A national conference on Milk in Relation to Public Health will be held in the King George's Hall, Caroline-street, Great Russell-street, London, W.C., on Tuesday, Nov. 16th, from 10 A.M. Reports will be submitted by public authorities on the present conditions of the milk-suply; suggestions for its improvement will be considered. Mr. Neville Chamberlain, Minister of Health, who is President of the conference, will speak during the afternoon session; amongst other speakers during the day will be Miss Harriette Chick, D.Sc., Dr. W. G. Savage, and Prof. H. R. Kenwood. The fee for membership of the conference is one guinea and application should be made as soon as possible to the secretary, Miss J. E. Holland, at 3, Bedford-square, London, W.C. 1, from whom alone tickets may be obtained.

CONFERENCE ON MENTAL WELFARE.—Under the auspices of the Central Association for Mental Welfare a conference, postponed from May last, will be held in the Central Hall, Westminster, on Thursday, Dec. 2nd, and Friday, Dec. 3rd. The first session will be devoted to the Proper Care of Defectives Outside Institutions. Sir Leslie Scott, the President of the Association, will take the chair; Miss Ruth Darwin and Mr. J. Sandeman Allen, M.P., will read papers, and Mrs. Hume Pinsen will open a discussion. On Thursday afternoon Mr. H. P. Macmillan, K.C., Chairman of the Royal Commission on Lunacy (1924–26) will take the chair at a meeting devoted to Borderland Cases, when papers will be read by Lieut.-Colonel Edwin Goodall, M.D., and Dr. W. R. Kemlo Watson. The subject of the session on Friday morning will be the Training of Teachers for Special Schools. Dr. H. B. Brackenbury will take the chair and Lord Eustace Percy, President of the Board of Education, will give the opening address. At the afternoon session Sir Archibald Bodkin, Director of Public Prosecutions, will act as chairman, and papers on Encephalitis Lethargica and its After-effects will be read by Dr. A. F. Tredgold and Dr. F. C. Shrubsall. Tickets (price 5*s.*) for admission to all sessions of the conference, and advance copies of papers, may be had from Miss Evelyn Fox, 24, Buckingham Palace-road, London, S.W. 1.

ROYAL SOCIETY OF MEDICINE.—The annual dinner will be held at the Hotel Victoria, Northumberland-avenue, London, on Thursday, Nov. 18th, at 7.30 for 8 P.M., when it is hoped that the Prime Minister will be the guest of honour.

ROYAL DENTAL HOSPITAL OF LONDON.—The dinner of past and present students of the hospital is to be held at the Trocadero on Saturday, Nov. 20th, at 6.30 for 7 P.M., when Mr. W. H. Dolamore will preside. The medical staff of the hospital will be "at home" from 2 to 5 P.M. on the same day when cases of interest will be shown.

GRADUATES OF THE UNIVERSITY OF EDINBURGH.—The West Riding Association of Graduates of the University will hold its annual dinner at the Midland Hotel, Bradford, on Wednesday, Nov. 17th, at 7.15 P.M. Prof. Kemp Smith, Dean of the Faculty of Arts, is to be the guest of the evening. The dinner will be preceded by a general meeting at 6.30.

ROYAL NORTHERN HOSPITAL.—As we have already reported (THE LANCET, Oct. 16th, p. 834) a case of small-pox was admitted to this hospital on Oct. 7th. As soon as the diagnosis was made the patient and contacts were isolated, the staff was vaccinated, and visitors were prohibited except in cases of serious illness. Thanks to these precautions the only person to contract small-pox has been the patient who occupied the bed next to the original sufferer. In this case the disease has appeared in modified form, and the hospital is now, so to speak, out of quarantine.

ST. THOMAS'S HOSPITAL: ANNUAL DINNER OF OLD STUDENTS.—The Old Students' dinner of St. Thomas's Hospital was held on Friday last, Oct. 29th, at the Hotel Victoria, London, Dr. R. Percy Smith presiding. There was a large attendance, and among the guests present were the Director-General of the Naval Medical Service, Sir Joseph Chambers, the Director-General of the Army Medical Service, Sir Matthew Fell, Sir John Rose Bradford, Lord Riddell, the Hon. Sir Arthur Stanley, treasurer of the hospital, Dr. C. H. Bond, Dr. Ingleby Oddie, coroner for Westminster, and Sir Squire Sprigge.

The first proceeding, after the loyal toasts was the presentation to Mr. Crown of an engrossed testimonial and a cheque, the occasion being his retirement from office as janitor after serving the hospital for no less than 48 years. The episode gave the note to the speech in which the Chairman proceeded to propose the toast of The Hospital and Medical School, for in the course of an interesting review of past history he gave many instances of remarkable tenure of office in connexion with the institution. Sir Arthur Stanley replied and congratulated the audience on the success which the school was obtaining in work and play. He referred to the great generosity of Lord Riddell in connexion with the acquisition of land for additional building, so that no further encroachments will have to be made upon the quadrangles of the hospital as it was originally planned after the removal from London Bridge to Westminster Bridge. As an instance of what their splendid structure, however, cost the responsible authorities, he gave the cost of repainting the new corridor as £2000. He concluded by appealing in humorous terms for material gifts, or the money with which to buy them, the object being the furnishing of the new students' union. He mentioned easy-chairs and writing-tables and said that he would not despise ink-pots or even ash-trays. Sir Cuthbert Wallace, Dean of the school, also replied to the toast, and announced the winners of the entrance scholarships and prizes for 1926–27, and mentioned the fact that the hospital now held the football challenge cup. In recalling to the memory certain well-known men of the school who had died during the year he gave a vivid sketch of Dr. J. Maclean, who started as a veterinary surgeon, became veterinary expert to the New Zealand Government, and later decided to enter the medical profession. After qualification he was appointed surgeon to the British Seamen's Hospital at Constantinople, and at the outbreak of war joined the Armenian Red Cross. Having acquired considerable influence with the Levantines, he was for a time left free to discharge his medical duties, but at length was deported to a Turkish prison. Flatly declining to be imprisoned, he interviewed the Commandant, and remained free to exercise his medical knowledge for the benefit of his captors. On returning to England after release from captivity he was employed by the Foreign Office in the relief of our prisoners in the East, in the course of which he became solely responsible for the disbursement of many thousands of pounds. Recently he became medical officer to the London Fever Hospital, where his administrative services proved extremely valuable, and his loss to medicine, as the result of acute septicæmia, following a trivial injury to his finger, was really grave. The toast of the guests was proposed by Dr. J. S. Fairbairn and was replied to by Lord Riddell, who suggested that just as in the rule of the world the era of priests was succeeded by the era of kings, so the era of kings was now being succeeded by one of doctors. The health of the Chairman was proposed by Sir George Makins and was drunk with acclamation.

Messrs. H. K. Lewis and Co., Ltd., announce the following books for early publication: "Infections of the Hand," by L. R. Fifield; "A Shorter Surgery," by R. J. McNeill Love; "An Introduction to the Law and Tradition of Medical Practice," by W. Sanderson and E. B. A. Rayner; "Artificial Light Treatment of Children in Rickets, Anæmia, and Malnutrition," by K. M. L. Gamgee; "Ultra-Violet Rays in General Practice," by W. A. Troup; "X Ray Apparatus: Its Arrangement and Use," by P. K. Bowes; and "Popular Education in Public Health," by W. A. Daley and H. Viney.

THE LATE DR. W. H. JUDSON.—Dr. Wilfrid Hyde Judson, whose death at the age of 45 occurred at Brighton on Oct. 21st, was the youngest son of the late Mr. H. E. Judson, of Oldham, Lancashire. He graduated M.B. at the Victoria University of Manchester in 1907 and in the following year was President of the Manchester Medical Students' Debating Society. Before settling in practice at Brighton he acted as medical inspector of the Shipping Federation at Manchester, assistant medical officer in the venereal department at Charing Cross Hospital, and resident clinical assistant at the London Lock Hospital.

SOCIETY OF MEMBERS OF ROYAL COLLEGE OF SURGEONS OF ENGLAND.—This society is asking Members of the College to attend the annual general meeting of Fellows and Members to be held at the College on Thursday, Nov. 18th, at 3 P.M., and support the following resolution, to be proposed by Mr. Wansey Bayly and seconded by Dr. Redmond Roche:—

That this thirty-eighth annual meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation upon the Council of the College, and respectfully requests the Council to take a postal vote of Fellows and Members on the general principle, as set out in this resolution.

It is stated that the by-laws of the College do not at present permit women to attend these meetings, though the right will presumably be granted them under the charter signed by the King in July last. The new President of the society is Dr. Ernest Ware, and the hon. secretary Dr. Sidney Lawrence, 106, Richmond Park-road, Bournemouth.

FUTURE OF THE VOLUNTARY HOSPITALS.—In reply to criticisms upon his speech at Coventry, which we briefly summarised last week (THE LANCET, Oct. 30th, p. 930), Mr. Neville Chamberlain explained in the *Times* that his policy is "wholly opposed to the creation of a State Medical Service." He is, however, anxious for "a closer coördination of the institutions existing in any given area by some body having general powers of guidance over hospital policy in that area." He adds that if the voluntary hospitals fail to take their part in such guidance "the body will undoubtedly be formed without them," an eventuality which he would "view with grave anxiety."—In his presidential address to the Incorporated Association of Hospital Officers last week the Hon. Sir Arthur Stanley advocated the formation of a hospitals association, "organised for service, protection, and progress." There already exist, he said, the Hospitals Department of the British Red Cross, the British Hospitals Association, and the Association of Hospital Officers, none of them representative of the hospitals or in a position to render complete service.

CONTINENTAL MEDICAL GRADUATES' ASSOCIATION. This association, known formerly as the Brussels University Medical Graduates' Association, held its annual dinner at the Langham Hotel on Oct. 28th, when Dr. H. Fielden Briggs, the President of the society, was supported by the Vice-President, Sir Thomas Carey-Evans. The toast of "The Association" was proposed by Sir Henry Jackson, and in response Dr. Briggs outlined the history of the Association and explained the objects—scientific and political—to be attained in the future. Under the former heading came the winter meetings at which eminent men would be asked to read papers, and summer congresses at various continental cities. Politically they would press for reciprocity of practice between this country and the European nations. Millions of English tourists and residents on the continent were unable to receive medical attention from their compatriots because they were prohibited from practising in those countries. Reform would imply an Act of Parliament to prohibit in this country the practice of medicine by unregistered persons. Mr. Hugh Edwards, M.P., signified his agreement with these remarks and promised to support such a Bill in Parliament if introduced by Sir Henry Jackson. Dr. Leonard Williams proposed the toast of "The Ladies" and Dr. Justina Wilson, in replying, contrasted the reception given to post-graduates on the continent to that at home. Sir Thomas Carey-Evans proposed "Kindred Societies," which was responded to by Mr. Mortimer Woolf, President of the Hunterian Society, and Dr. Ernest Young, President of the Chelsea Clinical Society. The concluding toast of "The President" was proposed felicitously by Dr. Campbell McClure.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting will be held at the Miller General Hospital, Greenwich, on Friday, Nov. 12th, at 8.45 P.M., when Mr. Harold Chapple will give an address on Abdominal Pain in Women.

ON Oct 1st the Sanatorium Wehrawald at Todtmoos in the southern part of the Black Forest was bought by the State Insurance Institute for four million marks and becomes from henceforth accessible only to insured patients. This sanatorium has had a long and distinguished career as an offshoot of Dr. Turban's sanatorium at Davos and now shares the fate of Dr. Walther's institution, better known in this country, in becoming part of the comprehensive system of insurance against tuberculosis which exists in Germany.

THE LATE DR. J. C. BRADSHAW.—Dr. James Charles Bradshaw, who died on Oct. 27th, in his sixty-ninth year, was well known in medical and Masonic circles in Liverpool. He studied medicine at the Royal College of Surgeons in Ireland and Queen's College, Birmingham, qualifying L.R.C.P. and L.R.C.S. Edin. in 1880, and taking the D.P.H. in 1889. He served as medical officer of health for the Sefton Rural District Council for 27 years and was a member of the old West Derby Board of Guardians. Formerly he was medical officer of health for the Brackley Rural District.

CHIROPODISTS IN CONFERENCE.—The first provincial conference of the Incorporated Society of Chiropodists was held in Manchester on Oct. 30th. The society was founded in 1913 "to support and protect the character, status and rights of chiropodists; to promote honourable professional demeanour, to repress malpractice, and to encourage scientific methods in the interests of the public and of legitimate practitioners." The society, which has now 350 members with branches in Manchester, Edinburgh, Yorkshire, and East Anglia, started the first free foot clinic for the poor in Europe, now known as the London Foot Hospital.

LEAGUE OF NATIONAL LIFE.—The first annual general meeting was held in the Caxton Hall, London, at 3 P.M. on Oct. 29th, Lord Fitzalan of Derwent being in the chair. The newly-elected President of the League, Dr. F. J. McCann, said that it was felt that contraception, or what is sometimes termed "birth control," was becoming a great national problem, indeed a problem of vital importance, and that accordingly the League was formed to influence public opinion along what they believed to be the correct lines, and to foster the perpetuation of family life which had always been one of the greatest traditions of the British race. He desired to make it clear at the outset that he did not approach the subject in any partisan spirit, his object being to seek the truth and to afford guidance to the many who are anxious to obtain it. His experience had led him to believe that the practice of contraception was evil and should be condemned because it was physically harmful to the female. Some of the methods of contraception were physically harmful to both sexes, but all known methods were in some degree harmful to the female. Physiological and clinical observations could be adduced to sustain the conclusion that the secretions of the male were absorbed by the uterus. It followed that any method of contraception which prevented or hindered this absorption deprived the female of far-reaching benefit to her bodily metabolism. Various contraceptive devices brought other dangers in their trail from infection, which was a real danger. Contraception could not be supported on medical grounds; it interfered with the whole physiological value of the sexual act, and its effects were injurious to the individual. Dr. Halliday Sutherland said that the League had been formed to combat the greatest and most insidious danger now confronting the nation and Empire. Birth prevention was race-suicide, and the suicide of a nation required less resolution than the suicide of an individual. The various fallacies of birth prevention would be exposed by experts—ethical, medical, statistical, and sociological—each writing or speaking in his own sphere. That was the immediate policy of the League. Dr. Letitia Fairfield said that perhaps the chief difficulty in the propaganda work of the League would be the fact that birth control was advocated as a panacea for every conceivable social evil. Those who undertook to oppose it are made to appear as reactionary. Members must be prepared to take up the arduous duty of disproving the case point by point, and this obviously was no light task. Experts were wanted to sit on the legal, economic, ethical, and medical subcommittees and hammer out the technicalities for the case against contraception in the closest detail. Writers—especially those with a gift for popular exposition—were wanted to shape reports into a form suitable for the public. Speakers were perhaps even more urgently required. The danger-point at the moment was the infant welfare clinic, and Dr. Fairfield described the special precautions which should be adopted to counter this form of attack.

COLLEGE OF PESTOLOGY.—The annual dinner and presentation of the Maxwell-Lefroy gold medal will take place at the Hotel Cecil on Thursday, Nov. 11th, at 7 for 7.30 P.M. Lt.-Col. Cuthbert James, M.P., will take the chair.

PRINCESS MARY AT STAMFORD INFIRMARY.—On Saturday Princess Mary opened a new wing, comprising maternity and children's wards, which have been erected as a war memorial at a cost of £11,000.

WEMBLEY HOSPITAL.—Sir J. R. Bradford, President of the Royal College of Physicians, on Saturday laid the foundation-stone of a hospital for Wembley. The cost has been found to be so much greater than was anticipated, partly on account of the coal stoppage, that further building operations are to be suspended until the dispute is settled.

SCARLET FEVER IN A LANCASHIRE INSTITUTION.—It was reported on Oct. 21st to the West Lancashire Rural District Council that a serious epidemic of scarlet fever had broken out at the School for Mental Deficients at Aughton, near Ormskirk, where 54 out of 107 inmates have been attacked. The Ministry of Health has asked for a special report. The medical officer states that he cannot trace the source of the infection.

HOSPITAL PROVISION FOR THE KENT COALFIELD.—The committee of governors of Dover Hospital have appointed a building committee to consider the best means of providing for the situation that is expected to arise from the coming development of the East Kent coalfields. The main subject for settlement is whether the hospital should be extended at an estimated cost of £15,000, or moved to another part of the town at a probable cost of £50,000. It is desired to extend the number of beds from 44 to 70.

BELFAST UNIVERSITY SERVICE CLUB.—The eighth annual dinner of this club will be held at 8 P.M. on Thursday, Nov. 11th, in Thompson's Restaurant, Donegall-place, Belfast. The President (Dr. J. S. Morrow, late Major, R.A.M.C.) will preside, and His Grace the Duke of Abercorn, V.-P., Governor of Northern Ireland, has signified his acceptance of the invitation to attend. The cost of the dinner will be 12*s.* 6*d.* (exclusive of wines) and those past and present Queensmen who wish to attend are requested to signify their intention of attending to the hon. secretaries, Dr. Robin Hall, 35, University-road, Belfast, or Major R. McCreary, *M.C.*, 15, Donegall Park-avenue, Belfast. On the same day, at 11 A.M., a wreath will be placed at the War Memorial in the University grounds in memory of fallen Queensmen, when it is hoped that all past and present Queensmen who can will attend.

ROYAL VICTORIA HOSPITAL, BELFAST.—The present session was opened on Oct. 19th, when an address was delivered by Mr. S. T. Irwin, F.R.C.S.I., who traced the history of the hospital from its origin in the old General Hospital in Frederick-street, which was opened in 1817. Various additions, he said, had been made from time to time, but the rapid growth of Belfast had made the hospital quite inadequate to the needs of the city, and in 1923 the present buildings had been erected, largely owing to the exertions of Lady Pirrie and the late Lord Pirrie. The hospital was built on the plenum system and represented the latest modern ideas. The work continued to grow rapidly; the staff had increased from 17 to 37, the residents from 4 to 14, and the nursing staff from 60 to 150. The number of patients, intern and extern, had been doubled. The recent extensions which were now complete, had raised the number of beds to 436, and all departments had received additions and more adequate equipment. The newly established dental department had had about 10,000 cases in the past year.

INSPECTION OF SCHOOL-CHILDREN IN IRELAND.—Mr. E. F. Stephenson, F.R.C.S.I., chief medical officer of the Department of Local Government and Public Health, gave an interview last week in which he described the inspection of school-children shortly to be undertaken in the Irish Free State. The local authorities, he said, would, in the first instance, prepare draft schemes detailing the number of National schools and the number of children. When appointed, the county medical officers of health would make preliminary surveys of the schools to get a working knowledge of the general physique and the standard which children of approximately the same age have attained in the different schools. The regulations provided for a general inspection of children and for inspection of children at specified age-periods. Each child would be first given a general examination by a doctor and then those who suffered from any particular defect would be treated. It was intended to utilise the existing hospitals as treatment centres and to make use of the services of nurses employed by district nursing associations, thus encouraging voluntary effort. In several cases special clinics, especially dental clinics, would be required. It was intended, Mr. Stephenson said, to coördinate the scheme with maternity and child welfare work.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—The first of a series of three lectures on the History of Medicine will be given in the College, Newcastle-upon-Tyne, by Dr. Charles Singer, on Nov. 19th, at 4.45 P.M.; all medical practitioners in the neighbourhood are invited.

Sir Thomas Oliver has been elected President of the College of Medicine, University of Durham, in place of Sir David Drummond, who has resigned, after serving the College in this capacity for eight years.

ROYAL SOCIETY OF EDINBURGH.—At the annual statutory meeting of this society held on Oct. 25th, Prof. Thomas Bryce, F.R.S., was elected a Vice-President. Amongst the councillors appointed were Lieut.-Colonel A. G. McKendrick, Prof. David Waterston, and Dr. Logan Turner.

SAVE THE CHILDREN FUND.—A concert party known as the Magpies is giving an entertainment at King George's Hall, off Tottenham Court-road, London, on the evening of Friday, Nov. 12th, in aid of the fund's first open-air residential school for delicate London children, established at St. Peter's, near Broadstairs. Tickets, from 1*s.* 3*d.* to 5*s.*, may be had from the concert secretary, 26, Gordon-street, London, W.C. 1.

DEFECTIVE BIRMINGHAM CHILDREN.—An extension of the Baskerville School for Physically Defective Children at Harborne has been opened by the Duchess of Atholl, M.P., Parliamentary Secretary to the Board of Education. The original intention of providing a school for crippled children was diverted into one for succouring children suffering from heart trouble. There has thus been provided what the Duchess described as "a new type in the provision of schools for defective children." The alteration was determined upon when it was found that the main source of supply was children suffering from the effects, especially upon the heart, of rheumatic affections.

SURGICAL INSTRUMENT MANUFACTURERS' ASSOCIATION.—The annual dinner was held at the Holborn Restaurant on Oct. 29th, Mr. G. W. Mayer presiding. The principal guests were Mr. Irwin Moore and Mr. L. Ferris-Scott. Mr. Patrick C. Maw, in proposing the toast of the association, said British surgical instruments were the product of skilled workmen, who took pride in turning out the best. The Chairman, in replying, said they had to try to induce surgeons and institutions throughout the country to order British goods. Mr. Irwin Moore, in replying to the toast of "The Guests," which was ably proposed by Colonel A. Young, said that he and all surgeons owed a deep debt of gratitude to the British surgical instrument makers, who were ever ready and willing to assist them. It was a well-known fact that no surgical instruments in the world could compete or compare in quality or efficiency with the British surgical instruments.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Nov. 8th.—5 P.M., WAR. Colonel J. W. West, R.A.M.C.: Peace-time Military Surgery.

TUESDAY.—5 P.M., THERAPEUTICS AND PHARMACOLOGY. Discussion on the Biological Standardisation of Remedies, to be opened by Dr. H. H. Dale. 8.30 P.M., PSYCHIATRY. Prof. Geo. M. Robertson: An Analysis of the Decrease in the number of Deaths from General Paralysis in England and Wales.

WEDNESDAY.—5.30 P.M., SURGERY: SUBSECTION OF PROCTOLOGY (specimens at 4 P.M.). Presidential address: Mr. J. P. Lockhart-Mummery: Non-malignant Tumours of the Colon and Rectum. A discussion will follow. There will be a collection of specimens of non-malignant tumours of the colon and rectum, excluding diverticulitis, from London and provincial hospitals.

THURSDAY.—8.30 P.M., NEUROLOGY. Clinical meeting at the West End Hospital for Nervous Diseases.

FRIDAY.—5.30 P.M., CLINICAL. (Cases at 5 P.M.) Mr. P. Turner: A Case of Pseudo-Hermaphroditism. Dr. Worster-Drought: Charcot's Arthropathy of Wrist. Mr. W. E. Tanner: A Case of Elevation of the Scapula. Mr. E. Pearce-Gould: A Case for Diagnosis. Dr. Parsons-Smith: A Case of Pleural Effusion of Doubtful Origin. Mr. F. D. Saner: Symptomless Abdominal Tumour for Diagnosis. Mr. N. L. Eckhoff: A Case of Diaphyseal Aclasia. Dr. Dorothy Hare: Splenomegaly and Cirrhosis wih Facial Telangiectases.

Mr. E. G. Slesinger: Carcinoma of the Thyroid. Cases will also be shown by Prof. C. A. Pannett and Mr. H. W. Carson. 8.30 P.M., OPHTHALMOLOGY. (Cases at 8 P.M.) Discussion on Macula Colobomata, to be opened by Mr. Malcolm L. Hepburn. Drawings illustrating the condition will be shown.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Nov. 8th.—8.30 P.M., Discussion on Sternal Pain, to be introduced by Dr. John Parkinson, followed by Mr. A. J. Walton.

BIOCHEMICAL SOCIETY.
MONDAY, Nov. 8th.—5 P.M. (In the Chemical Department, St. Thomas's Hospital Medical School.) *Communications.* J. Needham (introduced by D. M. Needham): The Rhythm of Chemical Differentiation in Avian Embryos. E. M. Goldblatt: Some Observations on Acidosis and Alkalosis. W. J. Griffiths and H. MacLean: The Part Played by Regurgitation in Gastric Digestion. J. Lowndes: Estimation of Cystine in the Modified Van Slyke Method of Analysis of Proteins. R. H. A. Plimmer: Changes in the Amino Acids in the Proteins of the Hen's Egg during Development. J. L. Rosedale: The Amino Acids of Flesh. H. W. Dudley, O. Rosenheim, and W. W. Starling: Spermidine, a Hitherto Undescribed Base Occurring in Animal Tissues. W. J. N. Burch: Hydrolysis of Phosphoric Esters. R. H. A. Plimmer and W. J. N. Burch: The Action of Ethyl Metaphosphate on Alcohols, Ammonia, and Some Amino Compounds. J. G. Davis and W. K. Slater: Aerobic and Anaerobic Metabolism of the Cockroach.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.
TUESDAY, Nov. 9th.—5 P.M., Dr. Arthur Shadwell: Medicine in Ancient Assyria. (First Fitz-Patrick Lecture.)
THURSDAY.—5 P.M. (Second Fitz-Patrick Lecture.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
THURSDAY, Nov. 11th.—5 P.M., Prof. E. W. Hey Groves: Reconstructive Surgery of the Hip Joint. (Bradshaw Lecture.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Nov. 8th, to SATURDAY, Nov. 13th.—FELLOWSHIP OF MEDICINE. Special lecture at the Medical Society of London, 11, Chandos-street, Cavendish-square, W. Thurs., Nov. 11th, at 5 P.M., Mr. A. E. Giles: Emergencies in Gynæcological Practice. Free to members of the medical profession.—ROYAL LONDON OPHTHALMIC HOSPITAL, City-road. Thurs., Nov. 11th, at 1 P.M., Mr. Maurice Whiting: Clinical Demonstration. Free to members of the medical profession.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Fri., Nov. 12th, at 2 P.M., Mr. L. C. Rivett: Special Demonstration. Free to members of the medical profession.—HAMPSTEAD GENERAL HOSPITAL, Haverstock-hill, N.W. Practitioners' course in medicine, surgery, and the specialties, 4.30 to 6 P.M. Clinical demonstrations and short lectures. Further information from the Secretary of the Fellowship of Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Nov. 8th.—2 P.M., Medical Cases in the Wards. 2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.
WEDNESDAY.—2.30 P.M. to 5 P.M., Medical Skin and Eye Clinics. Operations.
THURSDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.
FRIDAY.—2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.
On Monday, Nov. 8th, and Friday, Nov. 12th, at 2.30 P.M., there will be Special Demonstrations of Medical and Surgical Cases by Dr. J. B. Alexander and Mr. E. Gillespie respectively.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith.
MONDAY, Nov. 8th.—11 A.M., Mr. Tyrrell Gray: Surgical Wards. 12 noon, Mr. Simmonds: Fractures and Applied Anatomy. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
TUESDAY.—11 A.M., Mr. Endean: Venereal Diseases. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.
WEDNESDAY.—10.30 A.M., Dr. Burnford: Medical Wards. 2 P.M., Dr. Owen: Medical Out-patients. 2 P.M., Mr. Gibb: Eye Dept.
THURSDAY.—11 A.M., Resident Assistant Surgeon: Surgical Wards. 2 P.M., Mr. MacDonald: Genito-Urinary Department. 2 P.M., Mr. Donald Armour: Operations.
FRIDAY.—10 A.M., Sir Henry Simson: Gynæcological Operations. 12.15 P.M., Dr. Pritchard: Modern Methods in Medicine. 2 P.M., Mr. Sinclair: Surgical Out-patients.
SATURDAY.—9.30 P.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks Davis: Throat, Nose, and Ear Operations.
Daily, 10 A.M. to 5 P.M., Operations, Medical, Surgical, and Special Out-patients Departments, Operations. Saturdays, 10 A.M. to 1 P.M.

UNIVERSITY COLLEGE, Gower-street, W.C.
WEDNESDAY, Nov. 3rd.—5 P.M., Dr. C. H. Best: Insulin. (First of four advanced lectures in Physiology.)

POST-GRADUATE HOSTEL, Imperial Hotel, Russell-square, W.C.
TUESDAY, Nov. 9th.—9 P.M., Dr. S. Wright: The Output of the Heart in Health and Disease.
THURSDAY.—9 P.M., Mr. H. A. Harris: Epiphyses. Dinner, 8 P.M., 5s.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street.
THURSDAY, Nov. 11th.—4 P.M., Mr. Barrington-Ward: Common Congenital Malformations.

NATIONAL HOSPITAL, Queen-square, Bloomsbury, W.C.
MONDAY, Nov. 8th.—2 P.M., Dr. Hinds Howell: Out-patient Clinic. 3.30 P.M., Mr. Williamson-Noble: Papilœdema.
TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Risien Russell: Incoördination.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Mr. Just: Methods of Testing the Eighth Nerve (in Out-patient Department).
FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Mr. Perkins: The Treatment of Poliomyelitis.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Nov. 9th.—5 P.M., Dr. H. MacCormac: Diseases Due to Animal Parasites.
THURSDAY.—5 P.M., Dr. A. C. Roxburgh: Eruptions Due to Physical Causes.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, Nov. 9th.—4.15 P.M., Dr. W. E. Gye: An Outline of the Knowledge gained by the Experimental Study of Cancer. (Lloyd Roberts Lecture.)
FRIDAY.—4.15 P.M., Mr. J. F. Dobson: Oral Cancer.

ST. MARGARET'S HOSPITAL FOR WOMEN, Acomb-street, Whitworth Park, Manchester.
WEDNESDAY, Nov. 10th.—4 P.M., Mr. A. C. Magian: Insufflation of the Fallopian Tubes in Sterility and X Rays in the Diagnosis of Pregnancy.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.
FRIDAY, Nov. 12th.—3.30 P.M., at the Royal Infirmary: Mr. Cuff: Surgical Clinical Cases.

ANCOATS HOSPITAL POST-GRADUATE COURSE.
THURSDAY, Nov. 11th.—4.15 P.M., Mr. F. Holt Diggle: Tonsillectomy.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, St. Andrews.
TUESDAY, Nov. 9th.—4 P.M., Prof. Ashley Mackintosh: The Treatment of Arteriosclerosis. Discussion to be opened by Dr. Bryson.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Nov. 10th.—4 P.M., Prof. Winifred Cullis: Industrial Psychology Applied to the Home.

Appointments.

DAVIES, IVOR HUGHES, M.B., Ch.B. Liverp., has been appointed District Medical Officer and Vaccination Officer for the Unchaled District of Corwen Union.

NELIS, IRIS PHILIPPINE, L.R.C.P. & S.I., Medical Officer of Health to the Mold Urban Council.

Vacancies.

For further information refer to the advertisement columns.

Bath, Royal United Hospital.—H.P. and H.S. At rate of £120 and £100 respectively.

Birmingham and Midland Homœopathic Hospital and Dispensary.—H.S. £150.

Birmingham, Queen's Hospital.—Hon. Dental Surgeon. Also Hon. S. to Ear, Nose, and Throat Dept.

Birmingham Union, Selly Oak Hospital.—Res. Jun. Asst. M.O. At rate of £200.

Calcutta Presidency College.—Prof. of Physiology. Rs.650 per month.

Cancer Hospital, Fulham-road, S.W.—Jun. Radiologist. £500.

Carlisle Non-Provident Dispensary.—Res. M.O. £300.

Cheshire County Council.—Two Dist. Tub. O.'s. Each £600.

City of London Maternity Hospital, City-road, E.C.—Asst. Res. M.O. At rate of £80.

Cosford Union.—Dist. M.O. for Kersey Relief District. £44 3s. 8d.

Eastern Dispensary, Leman-street, E.—Gynæcologist.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P. Obstet. Asst. and two H.S.'s. Each at rate of £50. Also Clin. Assts.

Federated Malay States Medical Dept.—Radiologist. £700.

Freemason's Hospital and Nursing Home, 237, Fulham-road, Chelsea, S.W.—Res. M.O. At rate of £250.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. P.

Hull Royal Infirmary.—Hon. Phys.

London, Female Lock Hospital, 283, Harrow-road, W.—Hon. Obstet. S.
London Temperance Hospital, Hampstead-road, N.W.—Hon. P.
Manchester, Baguley Sanatorium.—Asst. M.O. £350.
Manchester Royal Infirmary.—Sen. Pathological Registrar. £100. Also Surgical Tutor. £30. Also Hon. Neurological Surg.
Manchester, Victoria Memorial Jewish Hospital.—Jun. H.S. At rate of £120.
Manor House Hospital, Golders Green, N.W.—Asst. S. £750.
Middleton-in-Wharfedale Sanatorium.—Sen. Asst. M.O. £600.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Asst. P. and two Asst. S.'s.
Northampton General Hospital.—Hon. S.
Oxford, Radcliffe Infirmary and County Hospital.—Hon. Asst. S. and Hon. Asst. Phys. to Electro-therapeutic Dept.
Portsmouth, St. Mary's Infirmary, &c.—Third Asst. Res. M.O. £250.
Royal College of Physicians, Pall Mall East.—Milroy Lecturer for 1928.
Royal Northern Hospital, Holloway, N.—M.O. to Out-patients. At rate of £125. Also H.S. At rate of £70.
St. George's Hospital, S.W.—Temp. Obstet. Reg. £40.
St. Mary's Hospital for Women and Children, Plaistow, E.—Res. M.O. and Asst. Res. M.O. At rate of £175 and £130 respectively.
Shanghai Municipal Council, Public Health Dept.—Asst. Pathologist. Tls.600 per mensem.
Sheffield, Winter-street Hospital.—Res. Tuberculosis M.O. £350.
Shrewsbury, Salop Mental Hospital.—Second Asst. M.O. £500.
South Uist Parish and Northern Division.—M.O. and Pub. Vaccinator. £620.
Throat Hospital, Golden-square, W.—Sec. Supt. £500. Also H.S. At rate of £100.
Truro, Royal Cornwall Infirmary.—H.S. £170.
West London Hospital, Hammersmith, W.—Phys.

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Dulverton, Somerset; St. Andrews, Fifeshire; Tiverton, Devon; and Richmond, Surrey.

Births, Marriages, and Deaths.

BIRTHS.

BUCHANAN.—On Oct. 24th, at Dale House, Shaw, the wife of Dr. Buchanan, of a son.
ENNION.—On Oct. 26th, at Harlech House, Burwell, Cambs., the wife of E. A. R. Ennion, M.R.C.S., L.R.C.P., of a daughter.
MOORE.—On Oct. 25th, 1926, at Malta, the wife of Surgeon-Commander Maurice Sydney Moore, M.D., D.P.H., R.N., of a son.

MARRIAGES.

HURRELL—LIMONT.—On Oct. 28th, at St. Luke's, West Norwood, George Hurrell, M.D., B.S., D.P.H. (Dunelm), elder son of Mr. and Mrs. G. Hurrell, of North Shields, to Margaret Evangeline, second daughter of the late James Limont, M.R.C.P., of Newcastle-upon-Tyne, and Mrs. Limont, of West Norwood.
MILLER—BAILEY.—On Oct. 30th, Thomas Duff Miller, M.D., F.R.F.P. & S. Glasg., to Trixie, only daughter of Mr. and Mrs. C. W. Bailey, of Battersea Park.

DEATHS.

BARENDT.—On Oct. 28th, suddenly, Frank H. Barendt, M.D. Lond., F.R.C.S. Eng., of Rodney-street, Liverpool.
CHURTON.—On Oct. 30th, at Cromer-road, Leeds, Thomas Churton, M.D., in his 88th year.
CROWDY.—On Oct. 26th, at South Grove, Highgate, Frederic Hamilton Crowdy, M.D., in his 75th year.
FLEETWOOD.—On Oct. 27th, at his residence, Tye House, Hadleigh, Suffolk, William Hardy Fleetwood, M.R.C.S., L.R.C.P.
MACKNESS.—On Oct. 31st, at Auchlean, Broughty Ferry, George Owen Carr Mackness, M.D.
RUDGE.—On Oct. 24th, at Whiteladies-road, Bristol, Charles King Rudge, M.R.C.S., L.R.C.P., aged 80.
SMITH-WYNNE.—On Oct. 26th, at Amersham, Bucks, suddenly, of heart failure, Graham Shaw Arnold Smith-Wynne, M.R.C.S., L.R.C.P.
WARNER.—On Oct. 26th, at "Whitbourne," Warlingham, Surrey, Francis Warner, M.D., F.R.C.P., F.R.C.S., in his 80th year.
WILLES.—On Oct. 30th, at Queen Adelaide-road, Penge, S.E., Joseph Willes, M.R.C.S., L.S.A. (Guy's), aged 88.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NEWCASTLE-UPON-TYNE THROAT, NOSE, AND EAR HOSPITAL.—The Duchess of Northumberland has opened a new wing in which modern operating theatres have been provided and the internal arrangements greatly improved. The work has drained the resources of the hospital, which has never before appealed for money, although it has been in existence for nearly 50 years.

Notes, Comments, and Abstracts.

MENTAL HOSPITALS

AND THEIR RELATION TO GENERAL AND TO OTHER SPECIAL HOSPITALS.*

BY G. F. BARHAM, M.D. CAMB.,
MEDICAL SUPT., LONDON COUNTY MENTAL HOSPITAL, CLAYBURY.

THE position which mental hospitals shall occupy in any comprehensive scheme of hospital organisation has become a question of national importance. It is only necessary to point to the high proportion of the population affected, to the magnitude of the problem of insanity, with its inseparable legal complications, and to the urgent need for team-work for research into the causes of mental disease, the discovery of new methods of treatment, and for investigating the whole question from the standpoint of preventive medicine. Mental hospitals cannot cope single-handed with these problems, for they mainly deal with the more advanced forms of disease. But neither can any other organisation which does not bring them into line in a uniform attack. The reason for insisting on this point is made clear by examining the trend of certain movements for reforming the lunacy law, and our methods of dealing with early forms of mental disorder. The pivot of these movements is the unsatisfactory working of the law, especially in its application to incipient and early cases, and the backward state of our knowledge of mental disease. They have already helped to bring about much improvement in organisation and education, and the Royal Commission which they helped to promote holds promise of many desirable reforms.

The Unity of Mental Disease.

There are, however, aspects of the propaganda employed which demand serious consideration. In the eagerness to secure freedom to treat early cases in clinics and nursing homes, and to avoid certification, the unity of mental disease tends to be overlooked. Mental hospitals have, often most unjustly, been maligned and suggestions have been made, the application of which would lead to the widening of the gulf of morbid sentimentality, which stands between these hospitals and the community, and tends moreover, to separate them from other branches of medicine. There is, in fact, a danger that the present tendency will, intentionally or otherwise, accentuate the isolation of mental hospitals, and that the more pronounced forms of disease with which these hospitals deal will remain beyond the borderland in a class marked off from all other forms of disease, thus perpetuating the stigma which ignorant prejudice attaches to them, and that the clock will be set back upon the time when a more enlightened community attains some understanding of the meaning and nature of disordered function of the brain and mind. The treatment of mental disease was formerly carried on without any active or close association with general medicine. For more than a generation, however, mental institutions have been progressively reforming themselves from within, but progress has been slow and there has been but little constructive help from outside. Not only was psychiatry neglected and badly taught in medical schools, but there was little tendency on the part of the medical centres, of universities, until quite recent times, to take any active part in solving the problems inherent in disease of the mind, or in grappling with the urgent need for teaching psychological medicine, or providing facilities for treating early cases.

Hospitalisation of Asylums.

The adoption of the title "mental hospital" in place of asylum represented more than a mere change of nomenclature. It marked at least one milestone on the difficult road taken by those who sought to change the whole character of these institutions. Hospitalisation of asylums means, in effect, not only the acquirement of hospital equipment and the employment of the discoveries of modern scientific medicine in the investigation and treatment of mental disease, but also an endeavour to secure the coöperation of specialists in other branches of medicine, concentration on organised research work, and the efficient teaching of psychiatry. Associated with this change, moreover, is the establishment of training schools with qualified teachers for mental nurses, and an endeavour to enlist the help and interest of general trained nurses in this highly specialised branch of nursing.

The old conception of the asylum is one that is rapidly passing. Mental hospitals are no longer mysterious closed institutions with conspicuously locked doors and blocked

* An appendix to the Seventh Annual Report on the Voluntary Hospitals in Great Britain, Red Cross Joint Council, 19, Berkeley-street, London, W. 1. 1s. 6d. post free.

windows, nor are they now essentially places of detention. Discharge of a patient is in most cases an easy matter. The hospital is freely open to public inspection, hospital visitors are encouraged, and convalescence and recovery are the first objects of treatment, and there are wide facilities for the freedom and occupation of the patients. It is, of course, essential that incipient and early cases of mental disorder should not be associated with more pronounced insanity, and to this end the widest facilities are required for their treatment in clinics, and for a really effective classification when it becomes necessary to place them in mental hospitals. But in all the propaganda for separate treatment outside mental hospitals, how frequently the unity of mental disease is overlooked. A patient, for example, suitable for treatment in a clinic or nursing home in one phase of the disease, may be quite unacceptable in another. The extreme variableness of the manifestations of any one form of disorder renders the closest coöperation and the easiest facilities for interchange between clinics and mental hospitals essential. But this end will not be gained by any measure which does not break down the general prejudice against the latter institutions, nor helps to remove the suspicion and dread which so often is attached to them.

A New Conception of Mental Hospital.

It is one of my objects to show that the closest coöperation between general hospitals, clinics, and mental hospitals is essential not only for the efficient treatment of mental disease, but also to coördinate research and to place the mental hospitals in a position to carry on their proper work, not isolated from, but in association with, other hospitals. The way is prepared for a new era in the treatment of mental disease, and it is contended that the open coöperation of the medical profession in this treatment will more effectually than by any other means restore public confidence and remove that dread of asylums which has done so much harm in fostering the growth of chronic insanity. Recognition of the importance of psychological medicine, not alone in the treatment of actual mental disease, is daily becoming more widespread. The evidence before the Royal Commission abundantly testifies to the general desire for liberty to treat mental cases in clinics, general hospitals, and private homes, as well as in mental hospitals. The opening of the Maudsley Hospital marked an important advance. There is scope for many more similar hospitals, but there is perhaps still greater need at the present time for psychiatric and neurological clinics at all general hospitals, especially those attached to schools of medicine. The provision of facilities for in-patient treatment of early mental cases is a question of public interest, and is required for teaching and research. Even a liberal provision of clinics, however, must leave untouched the major problem of the treatment of the great mass of certifiable cases as well as of those early cases for which the clinics would be unsuitable. Moreover, the situation of the modernised mental hospital and the opportunities it affords are more adaptable for the care and treatment of the majority of mental cases, certified or voluntary, a very large proportion of which will always require the care of a rate- or State-supported hospital under State supervision.

Linking up of Hospital Units.

The question at issue concerns the part mental hospitals shall play in the linking up of hospital units in the future organisation of an efficient medical service. No sequestered position beyond an ill-defined borderland will suffice to remove the present disabilities under which these institutions labour. Mental hospitals must take an equal place with other special hospitals. Their participation in the general progress of medicine can alone be achieved by measures which, while comprising a single organisation for the mental welfare of the community, make adequate provision for the treatment of the physical as well as the psychological aspect of mental disease and enable mental hospitals to work in coöperation with other hospitals. The realisation of this objective requires :—

1. The formation of homogeneous units within a scheme of hospital organisation to include the clinic of a general hospital, a reception hospital, and a mental hospital.
2. The development of existing institutions which must of necessity function in any comprehensive scheme dealing with mental disease, and the promotion of coöperation between them and other hospital units by means of visiting staff and easy facilities for interchange and for out-patient treatment.
3. The utmost possible freedom to treat mental cases in clinics and private houses and the adoption of the voluntary system on the widest basis compatible with security.
4. The education of public opinion in regard to mental disorders and the need for early treatment ; and the removal, as far as possible, of all semblance of compulsion and detention.

If this position is accepted, the mental hospital of the future will take its place as one unit of a special department in an organised scheme for hospital treatment subserving defined areas, and mental patients will participate in those benefits and humane considerations open to all free members of the community. Such a comprehensive scheme will no doubt take much time and energy in realisation.

Affiliation with General Hospitals.

In the meantime mental hospitals stand in urgent need of assistance through coöperation, and an intermediate step in the direction of a working affiliation with general hospitals—already in force in a few instances and under contemplation in others—would be a most desirable preparatory move towards the more comprehensive organisation. Affiliation implies a voluntary working association between a mental hospital and the nearest general hospital, where possible attached to a school of medicine, for the purpose of :

1. Increasing the means for the treatment of mental disease.
2. Organising research work.
3. Developing the teaching of psychological medicine.
4. Increasing the facilities for training nurses.

By affiliation mental hospitals would acquire the services of a consultant staff of specialists, and the association of the mental hospital staff with doctors specialising in other branches of medicine working together in a general hospital, especially when this association brings them into contact with a teaching centre, must greatly increase the scope of treatment of those physical disorders so abundantly found in mental cases, and stimulate interest in psychological medicine.

The establishment of psychiatric and neurological clinics at general hospitals, with provision of beds, as well as out-patient treatment, would form valuable centres for receiving and treating certain early cases and other cases of interest, or for diagnosis, either directly or by transfer from the mental hospital. Patients absent on trial from the mental hospital could, moreover, receive further supervision and treatment if required in the out-patient department of the clinic, a procedure which would be of great assistance in dealing with convalescing cases, especially if medical officers of the mental hospital could hold assistant posts in this department. With amendment of the Lunacy Acts, which there is good reason for anticipating will include a wide adoption of the voluntary system and simplification of the formalities of admission, easy transference between the clinic and mental hospital would be of inestimable benefit to both patients and relatives, and would greatly help in the difficult question of classification in dealing with the varying phases and forms of mental disease.

Students and Nurses.

On the other hand, the valuable material available in mental hospitals would be at the disposal of medical schools, for research work and for teaching students. Clinical assistantships and temporary medical appointments would be available at the affiliated mental hospital, and post-graduate instruction and familiarity with mental disease facilitated. Finally, there is the important question of nursing. As stated above, much attention is now given to training mental nurses, and nurses possessing a general nursing certificate are sought after in mental hospitals. Certificated mental nurses, moreover, are now frequently seconded for the purpose of obtaining a general certificate, and the matrons of most mental hospitals require to possess the double certificate. Few people to-day would criticise adversely the advantage of this double training, or the benefit to any nurse of a knowledge of mental reactions both normal and abnormal, and it is to be hoped that under affiliation reciprocal facilities may be afforded for the higher training of the most efficient nurses.

Psychiatry has often been referred to as the sick sister of medicine. The last report of the Board of Control bears testimony to the strenuous effort that is being made to remove this reproach. Will the general hospitals proffer the assistance that is sought ? Psychology—normal and abnormal—is still the weakest spot in the medical curriculum. A combined effort is required to ensure progress and awaken the interest of the whole profession in the mental aspect which is never negligible in all other manifestations of disease.

"THE LEECH."

THE most recent addition to medical journals is *The Leech*, of which the first number has just been issued by and for students of the Welsh National Medical School. Its format is pleasing and the subject matter well planned, both serious and frivolous material finding a place. Prof. David Hepburn writes on the Importance of Anatomy, Mr. Lambert Rogers on Thyrotoxicosis, Mr. John Pryde on Biochemistry and Modern Medicine, and Mr. S. S. Budd describes a case of phantom tumour in a girl of 14 years. Miss E. Williams contributes some short notes on the early history of endocrinology and the rest of the issue is filled by reports of students' activities and by articles and anecdotes in lighter vein. Proof reading has, on the whole, been careful ; there is a misprint in the legend to the electrocardiogram on p. 12, where "head" should read "lead" and the name of Dr. Harington, who has recently revised the formula of thyroxine, is mis-spelt. The journal should serve to strengthen the moral of this new school and to promote and maintain contact between its members.

SUN-BATHING IN UPPER EGYPT.

BY GEORGE V. WORTHINGTON, M.B., B.C. CAMB.

FOR years past a certain number of visitors in search of health, and tourists also, have been in the habit of taking sun-baths in a casual way without knowledge and without seeking advice. Each winter season I am called to see a few of them suffering more or less severely from over-exposure, the result of this want of knowledge. In no resort in Egypt has there been provided, up to the present, any proper accommodation or efficient facilities for sun-therapy; results have, therefore, been uncertain and sun-bathing somewhat of an adventure. On this account comparatively few have been inclined to avail themselves of one of Nature's greatest aids to maintaining and acquiring proper health.

Patients taking sun-baths on the roof of the new Luxor Hotel.

In Luxor this state of affairs is now being remedied, the directors of the Upper Egypt Hotels Company having agreed to erect the necessary shades and shelters on the roof of the New Luxor Hotel. In addition there are also many rooms with suitable balconies in both the Winter Palace and the Luxor Hotel. Visitors to Luxor will in future be able to take sun-baths in a scientific manner under supervision. Upper Egypt is an ideal locality for the purpose, for a brilliant, hot sun shines practically all day and every day through a clear, dry, cool, and bracing atmosphere, and a course of three months may usually be taken without a break.

Over-exposure may do much harm and must be carefully guarded against, and following Rollier, insolation is commenced with exposure of the limbs only, in order that toleration may be well advanced before the more vulnerable parts are exposed. The guide to exposure is pigmentation; the earlier the pigmentation the more rapid will be the advance. When the whole body is well pigmented there is little or no danger of over-exposure or burn, and the patient may enjoy several hours of sun-bathing during the day. The head and neck are always protected. The best time of day for insolation is the early hours, 6–9 A.M., when the air is coolest. Later in the day the periods must be shorter and the intervals more frequent.

The subjective effects of sun-bathing include a sense of general well-being and exhilaration if the exposure has been correct; resistance is increased and pain is relieved. If the exposure has been too great, lassitude, headache, and perhaps vertigo are complained of. An overdose may produce acute and prolonged headache, nervous irritability, and insomnia. The objective effects include a slight and temporary rise of temperature and increase in rate of pulse and respiration. The muscular system is improved in tone.

Cases in which insolation is beneficial are the following. Fibrositis and the various forms of chronic rheumatism, including sciatica and other forms of neuritis. These can usually take a prolonged course without break, but individuals liable to attacks of acute gout must proceed cautiously. A sojourn in Egypt has been recommended almost as a climatic specific for rheumatoid arthritis, and the majority of cases are greatly benefited, but not all. A certain number do not improve in a warm climate, even if dry, and do better in the Engadine or other Alpine resort. The history may be taken as a sure guide; if the patient dislikes cold and suffers more in the winter, he should choose a warm place to winter in. Chronic bronchitis and emphysema and chronic nasal catarrh of the hypertrophic variety all derive much benefit; cough subsides and excessive secretion dries up. Anæmic girls require a mild but prolonged sun cure, when they become toned up, rested, and bronzed. Early cases of nephritis do well; the freely-acting skin relieves the kidneys. Early high tension cases improve if sufficient time is allowed. Neurasthenics often show rapid improvement under the action of sun, rest, and quiet. Any septic focus in teeth, tonsils, or nasal sinuses should, of course, be dealt with before the journey is taken.

Visitors coming to Luxor for the sun cure should engage rooms with balconies on the south-east aspect. They should arrive, if possible, early in December, and be prepared to leave about the end of February, as during March the weather may become too hot and the hotels are crowded with tourists.

ACTINOTHERAPY AT GLASGOW.

LAST Saturday the Scottish Society of Medical Officers of Health attended a demonstration of clinics established by the Glasgow Corporation for treatment by ultra-violet radiation. Besides installations at Robroyston and Ruchill Hospitals, clinics have been opened for out-patients at the Public Health Department offices, 20, Cochrane-street, and at the Reception House, Baird-street. At Cochrane-street about 60 children referred from welfare centres over the city attend daily. Before treatment each child is bathed in a washing and spraying bath, and it has been found that the washing acts as a stimulant to the skin and that the penetration is improved. After exposure the children are rubbed down and powdered. The adults, who are treated at another clinic, have a spray bath after exposure. It was stated that for children short, frequently repeated, exposures, very gradually increased, give better results than those of long duration. Length of exposure begins with carbon arc at two to four minutes, at a distance of three feet, or with quartz mercury-vapour at one to two minutes, from the same distance. Children under 1 year are given relatively shorter exposures. Cases of idiosyncrasy occur and it is therefore necessary to estimate the response to initial exposures very carefully and to keep the cases under personal observation during the whole period of treatment. The mothers attend the lamps with the children and carry out the superintendent's timed instructions as to parts of body to be exposed. Exact records are kept at every stage.

At the Baird-street Reception House out-door cases of non-pulmonary tuberculosis are treated. The couches are adapted for lying exposure, and the periods of treatment are carefuly adjusted to the types of case. At Robroyston Hospital Dr. Kathleen Smith gave a lantern description of cases, some of which had shown striking improvement. In the treatment of pulmonary cases with rays, she said, the best test was the pulse-rate. If an increase of ten beats per minute under the rays did not subside within an hour after exposure, the dose had been too much. It was observed that the general condition grew better under the rays, but the local lung condition did not perceptibly improve. The treatment was to be regarded as "still a very doubtful business," and fixation methods were used as well as radiation.